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THROUGH NATURE TO GOD

BY

JOHN FISKE

Soyez comme l'oiseau posé pour un instant
Sur des rameaux trop frêles,
Qui sent ployer la branche et qui chante pourtant,
Sachant qu'il a des ailes!
VICTOR HUGO

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TO THE BELOVED AND REVERED MEMORY
OF MY FRIEND

THOMAS HENRY HUXLEY

THIS BOOK IS CONSECRATED

PREFACE

A SINGLE purpose runs throughout this little book, though different aspects of it are treated in the three several parts. The first part, "The Mystery of Evil," written soon after "The Idea of God," was designed to supply some considerations which for the sake of conciseness had been omitted from that book. Its close kinship with the second part, "The Cosmic Roots of Love and Self-Sacrifice," will be at once apparent to the reader.

That second part is, with a few slight changes, the Phi Beta Kappa oration delivered by me at Harvard University, in June, 1895. Its original title was "Ethics in the Cosmic Process," and its form of statement was partly determined by the fact that it was intended as a reply to

Huxley's famous Romanes lecture delivered at the University of Oxford in 1893. Readers of "The Destiny of Man" will observe that I have here repeated a portion of the argument of that book. The detection of the part played by the lengthening of infancy in the genesis of the human race is my own especial contribution to the Doctrine of Evolution, so that I naturally feel somewhat uncertain as to how far that subject is generally understood, and how far a brief allusion to it will suffice. It therefore seemed best to recapitulate the argument while indicating its bearing upon the ethics of the Cosmic Process.

I can never cease to regret that Huxley should have passed away without seeing my argument and giving me the benefit of his comments. The subject is one of a kind which we loved to discuss on quiet Sunday evenings at his fireside in London, many years ago. I have observed on Huxley's part, not only in the Romanes lecture, but also in the charming "Prolegomena,"

written in 1894, a tendency to use the phrase "cosmic process" in a restricted sense as equivalent to "natural selection;" and doubtless if due allowance were made for that circumstance, the appearance of antagonism between us would be greatly diminished. In our many talks, however, I always felt that, along with abundant general sympathy, there was a discernible difference in mental attitude. Upon the proposition that "the foundation of morality is to . . . give up pretending to believe that for which there is no evidence," we were heartily agreed. But I often found myself more strongly inclined than my dear friend to ask the Tennysonian question: —

> "Who forged that other influence,
> That heat of inward evidence,
> By which he doubts against the sense?"

In the third part of the present little book, "The Everlasting Reality of Religion," my aim is to show that "that other influence," that inward conviction, the craving for a final cause, the theistic assump-

tion, is itself one of the master facts of the universe, and as much entitled to respect as any fact in physical nature can possibly be. The argument flashed upon me about ten years ago, while reading Herbert Spencer's controversy with Frederic Harrison concerning the nature and reality of religion. Because Spencer derived historically the greater part of the modern belief in an Unseen World from the savage's primeval world of dreams and ghosts, some of his critics maintained that logical consistency required him to dismiss the modern belief as utterly false; otherwise he would be guilty of seeking to evolve truth from falsehood. By no means, replied Spencer: "Contrariwise, the ultimate form of the religious consciousness is the final development of a consciousness which at the outset contained a germ of truth obscured by multitudinous errors." This suggestion has borne fruit in the third part of the present volume, where I have introduced a wholly new line of argument to show that

the Doctrine of Evolution, properly understood, does not leave the scales equally balanced between Materialism and Theism, but irredeemably discredits the former, while it places the latter upon a firmer foundation than it has ever before occupied.

My reference to the French materialism of the eighteenth century, in its contrast with the theism of Voltaire, is intended to point the stronger contrast between the feeble survivals of that materialism in our time and the unshakable theism which is in harmony with the Doctrine of Evolution. When some naturalist like Haeckel assures us that as evolutionists we are bound to believe that death ends all, it is a great mistake to hold the Doctrine of Evolution responsible for such a statement. Haeckel's opinion was never reached through a scientific study of evolution; it is nothing but an echo from the French speculation of the eighteenth century. Such a writer as La Mettrie proceeded upon the assumption that no belief concerning anything in

the heavens above, or the earth beneath, or the waters under the earth, is worthy of serious consideration unless it can be demonstrated by the methods employed in physical science. Such a mental attitude was natural enough at a time when the mediæval theory of the world was falling into discredit, while astronomy and physics were winning brilliant victories through the use of new methods. It was an attitude likely to endure so long as the old-fashioned fragmentary and piecemeal habits of studying nature were persisted in; and the change did not come until the latter half of the nineteenth century.

The encyclopædic attainments of Alexander von Humboldt, for example, left him, to all intents and purposes, a materialist of the eighteenth century. But shortly before the death of that great German scholar, there appeared the English book which heralded a complete reversal of the attitude of science. The "Principles of Psychology," published in 1855 by Herbert Spencer, was

the first application of the theory of evolution on a grand scale. Taken in connection with the discoveries of natural selection, of spectrum analysis, and of the mechanical equivalence between molar and molecular motions, it led the way to that sublime conception of the Unity of Nature by which the minds of scientific thinkers are now coming to be dominated. The attitude of mind which expressed itself in a great encyclopædic book without any pervading principle of unity, like Humboldt's "Kosmos," is now become what the Germans call *ein ueberwundener Standpunkt*, or something that we have passed by and left behind.

When we have once thoroughly grasped the monotheistic conception of the universe as an organic whole, animated by the omnipresent spirit of God, we have forever taken leave of that materialism to which the universe was merely an endless multitude of phenomena. We begin to catch glimpses of the meaning and dramatic purpose of things; at all events we rest as-

sured that there really is such a meaning. Though the history of our lives, and of all life upon our planet, as written down by the unswerving finger of Nature, may exhibit all events and their final purpose in unmistakable sequence, yet to our limited vision the several fragments of the record, like the leaves of the Cumæan sibyl, caught by the fitful breezes of circumstance and whirled wantonly hither and thither, lie in such intricate confusion that no ingenuity can enable us wholly to decipher the legend. But could we attain to a knowledge commensurate with the reality — could we penetrate the hidden depths where, according to Dante (*Paradiso*, xxxiii. 85), the story of Nature, no longer scattered in truant leaves, is bound with divine love in a mystic volume, we should find therein no traces of hazard or incongruity. From man's origin we gather hints of his destiny, and the study of evolution leads our thoughts through Nature to God.

CAMBRIDGE, March 2, 1899.

CONTENTS

The Mystery of Evil

I. *The Serpent's Promise to the Woman* . 3
II. *The Pilgrim's Burden* 8
III. *Manichæism and Calvinism* 14
IV. *The Dramatic Unity of Nature* . . 22
V. *What Conscious Life is made of* . . 27
VI. *Without the Element of Antagonism there could be no Consciousness, and therefore no World* 34
VII. *A Word of Caution* 40
VIII. *The Hermit and the Angel* . . . 43
IX. *Man's Rise from the Innocence of Brutehood* 48
X. *The Relativity of Evil* 54

The Cosmic Roots of Love and Self-Sacrifice

I. *The Summer Field, and what it tells us* . 59
II. *Seeming Wastefulness of the Cosmic Process* 65

III. *Caliban's Philosophy* 72
IV. *Can it be that the Cosmic Process has no Relation to Moral Ends?* 74
V. *First Stages in the Genesis of Man* . 80
VI. *The Central Fact in the Genesis of Man* . 86
VII. *The Chief Cause of Man's lengthened Infancy* 88
VIII. *Some of its Effects* 96
IX. *Origin of Moral Ideas and Sentiments* . 102
X. *The Cosmic Process exists purely for the Sake of Moral Ends* 109
XI. *Maternity and the Evolution of Altruism* . 117
XII. *The Omnipresent Ethical Trend* . . 127

THE EVERLASTING REALITY OF RELIGION

I. *"Deo erexit Voltaire"* 133
II. *The Reign of Law, and the Greek Idea of God* 147
III. *Weakness of Materialism* 152
IV. *Religion's First Postulate: the Quasi-Human God* 163
V. *Religion's Second Postulate: the undying Human Soul* 168
VI. *Religion's Third Postulate: the Ethical Significance of the Unseen World* . . 171
VII. *Is the Substance of Religion a Phantom, or an Eternal Reality?* 174

VIII. *The Fundamental Aspect of Life* . . 177
IX. *How the Evolution of Senses expands the World* 182
X. *Nature's Eternal Lesson is the Everlasting Reality of Religion* 186

THE MYSTERY OF EVIL

I am the Lord, and there is none else. I form the light, and create darkness; I make peace, and create evil. I the Lord do all these things. — ISAIAH, xlv. 6, 7.

Did not our God bring all this evil upon us? — NEHEMIAH, xiii. 18.

Οὐκ ἔοικε δ' ἡ φύσις ἐπεισοδιώδης οὖσα ἐκ τῶν φαινομένων, ὥσπερ μοχθηρὰ τραγωδία. — ARISTOTLE, *Metaphysica*, xiii. 3.

I

The Serpent's Promise to the Woman

"Your eyes shall be opened, and ye shall be as gods, knowing good and evil." *Genesis* iii. 5.

THE legend in which the serpent is represented as giving this counsel to the mother of mankind occurs at the beginning of the Pentateuch in the form which that collection of writings assumed after the return of the Jews from the captivity at Babylon, and there is good reason for believing that it was first placed there at that time. Allusions to Eden in the Old Testament literature are extremely scarce,[1] and the story of Eve's temptation first assumes prominence in the writings of St. Paul. The marks of Zoroastrian thought in it have often been pointed out. This garden of Eden is a true Persian para-

[1] Isaiah li. 3; Joel ii. 3; Ezekiel xxviii. 13, xxxi. 8, 9.

dise, situated somewhere in that remote wonderland of Aryana Vaëjo to which all Iranian tradition is so fond of pointing back. The wily serpent is a genuine Parsee serpent, and the spirit which animates him is that of the malicious and tricksome Ahriman, who takes delight in going about after the good creator Ormuzd and spoiling his handiwork. He is not yet identified with the terrible Satan, the accusing angel who finds out men's evil thoughts and deeds. He is simply a mischief-maker, and the punishment meted out to him for his mischief reminds one of many a curious passage in the beast epos of primitive peoples. As in the stories which tell why the mole is blind or why the fox has a bushy tail, the serpent's conduct is made to account for some of his peculiar attributes. As a punishment he is made to crawl upon his belly, and be forever an object of especial dread and loathing to all the children of Eve.

What, then, is the crime for which the serpent Ahriman thus makes bitter expia-

tion? In what way has he spoiled Ormuzd's last and most wonderful creation? He has introduced the sense of sin: the man and the woman are afraid, and hide themselves from their Lord whom they have offended. Yet he has been not altogether a deceiving serpent. In one respect he had spoken profound truth. The man and the woman have become as gods. In the Hebrew story Jehovah says, "Behold the man is become as one of us;" that is to say, one of the Elohim or heavenly host, who know the good and the evil. Man has apparently become a creature against whom precautions need to be taken. It is hinted that by eating of the other tree and acquiring immortal life he would achieve some result not in accordance with Jehovah's will, yet which it would then be too late to prevent. Accordingly, any such proceedings are forestalled by driving the man and woman from the garden, and placing sentinels there with a fiery sword which turns hither and thither to warn off all who would

tread the path that leads to the tree of life. The anthropomorphism of the story is as vivid as in those Homeric scenes in which gods and men contend with one another in battle. It is plainly indicated that Jehovah's wrath is kindled at man's presumption in meddling with what belongs only to the Elohim; man is punished for his arrogance in the same spirit as when, later on, he gives his daughters in marriage to the sons of the Elohim and brings on a deluge, or when he strives to build a tower that will reach to heaven and is visited with a confusion of tongues. So here in Eden he has come to know too much, and Ahriman's heinous crime has consisted in helping him to this interdicted knowledge.

The serpent's promise to the woman was worthy of the wisest and most astute of animals. But with yet greater subtlety he might have declared, Except ye acquire the knowledge of good and evil, ye cannot come to be as gods; divine life can never be yours. Throughout the Christian world

this legend of the lost paradise has figured as the story of the Fall of Man; and naturally, because of the theological use of it made by St. Paul, who first lifted the story into prominence in illustrating his theory of Christ as the second Adam: since by man came death into the world, by man came also the resurrection from death and from sin. That there is truth of the most vital sort in the Pauline theory is undeniable; but there are many things that will bear looking at from opposite points of view, for aspects of truth are often to be found on both sides of the shield, and there is a sense in which we may regard the loss of paradise as in itself the beginning of the Rise of Man. For this, indeed, we have already found some justification in the legend itself. It is in no spirit of paradox that I make this suggestion. The more patiently one scrutinizes the processes whereby things have come to be what they are, the more deeply is one impressed with its profound significance.

II

The Pilgrim's Burden

BUT before I can properly elucidate this view, and make clear what is meant by connecting the loss of innocence with the beginning of the Rise of Man, it is necessary to bestow a few words upon a well-worn theme, and recall to mind the helpless and hopeless bewilderment into which all theologies and all philosophies have been thrown by the problem of the existence of evil. From the ancient Greek and Hebrew thinkers who were saddened by the spectacle of wickedness insolent and unpunished, down to the aged Voltaire and the youthful Goethe who felt their theories of God's justice quite baffled by the Lisbon earthquake, or down to the atheistic pessimist of our own time who asserts that the Power which sustains the

world is but a blind and terrible force without concern for man's welfare of body or of soul, — from first to last the history of philosophy teems with the mournful instances of this discouragement. In that tale of War and Peace wherein the fervid genius of Tolstoi has depicted scenes and characters of modern life with truthful grandeur like that of the ancient epic poems, when our friend, the genial and thoughtful hero of the story, stands in the public square at Moscow, uncertain of his fate, while the kindly bright-faced peasant and the eager pale young mechanic are shot dead by his side, and all for a silly suspicion on the part of Napoleon's soldiery; as he stands and sees the bodies, still warm and quivering, tossed into a trench and loose earth hastily shovelled over them, his manly heart surges in rebellion against a world in which such things can be, and a voice within him cries out, — not in the mood in which the fool crieth, but with the anguish of a tender soul wrung by the sight

of stupendous iniquity, — "There is no God!" It is but the utterance of an old-world feeling, natural enough to hard-pressed and sorely tried humanity in those moments that have come to it only too often, when triumphant wrong is dreadfully real and close at hand, while anything like compensation seems shadowy and doubtful and far away.

It is this feeling that has created the belief in a devil, an adversary to the good God, an adversary hard to conquer or baffle. The feeling underlies every theological creed, and in every system of philosophy we find it lurking somewhere. In these dark regions of thought, which science has such scanty means for exploring, the statements which make up a creed are apt to be the outgrowth of such an all-pervading sentiment, while their form will be found to vary with the knowledge of nature — meagre enough at all times, and even in our boasted time — which happens to characterize the age in which they are made.

Hence, well-nigh universally has philosophy proceeded upon the assumption, whether tacit or avowed, that pain and wrong are things hard to be reconciled with the theory that the world is created and ruled by a Being at once all-powerful and all-benevolent. Why does such a Being permit the misery that we behold encompassing us on every side? When we would fain believe that God is love indeed, and love creation's final law, how comes it that nature, red in tooth and claw with ravine, shrieks against our creed? If this question could be fairly answered, does it not seem as if the burden of life, which so often seems intolerable, would forthwith slip from our shoulders, and leave us, like Bunyan's pilgrim, free and bold and light-hearted to contend against all the ills of the world?

Ever since human intelligence became enlightened enough to grope for a meaning and purpose in human life, this problem of the existence of evil has been the burden of man. In the effort to throw it off, lead-

ers of thought have had recourse to almost every imaginable device. It has usually been found necessary to represent the Creator as finite either in power or in goodness, although the limitation is seldom avowed, except by writers who have a leaning toward atheism and take a grim pleasure in pointing out flaws in the constitution of things. Among modern writers the most conspicuous instance of this temper is afforded by that much too positive philosopher Auguste Comte, who would fain have tipped the earth's axis at a different angle and altered the arrangements of nature in many fanciful ways. He was like Alphonso, the learned king of Castile, who regretted that he had not been present when the world was created, — he could have given such excellent advice!

In a very different mood the great Leibnitz, in his famous theory of optimism, argued that a perfect world is in the nature of things impossible, but that the world in which we live is the best of possible worlds.

The limitation of the Creator's power is made somewhat more explicitly by Plato, who regarded the world as the imperfect realization of a Divine Idea that in itself is perfect. It is owing to the intractableness and vileness of matter that the Divine Idea finds itself so imperfectly realized. Thus the Creator's power is limited by the nature of the material out of which he makes the world. In other words, the world in which we live is the best the Creator could make out of the wretched material at his disposal. This Platonic view is closely akin to that of Leibnitz, but is expressed in such wise as to lend itself more readily to myth-making. Matter is not only considered as what Dr. Martineau would call a "datum objective to God," but it is endowed with a diabolical character of its own.

III

Manichæism and Calvinism

IT is but a step from this to the complicated personifications of Gnosticism, with its Demiurgus, or inferior spirit that created the world. By some of the Gnostics the Creator was held to be merely an inferior emanation from God, a notion which had a powerful indirect effect upon the shaping of Christian doctrine in the second and third centuries of our era. A similar thought appears in the mournful question asked by Tennyson's Arthur : —

> "O me! for why is all around us here
> As if some lesser god had made the world
> And had not force to shape it as he would?"

But some Gnostics went so far as to hold that the world was originally created by the Devil, and is to be gradually purified and

redeemed by the beneficent power of God as manifested through Jesus Christ. This notion is just the opposite to that of the Vendidad, which represents the world as coming into existence pure and perfect, only to be forthwith defiled by the trail of the serpent Ahriman. In both these opposing theories the divine power is distinctly and avowedly curtailed by the introduction of a rival power that is diabolical; upon this point Parsee and Gnostic are agreed. Distinct sources are postulated for the evil and the good. The one may be regarded as infinite in goodness, the other as infinite in badness, and the world in which we live is a product of the everlasting conflict between the two. This has been the fundamental idea in all Manichæan systems, and it is needless to say that it has always exerted a mighty influence upon Christian theology. The Christian conception of the Devil, as regards its deeper ethical aspect, has owed much to the Parsee conception of Ahriman. It can hardly be said, however,

that there has been any coherent, closely reasoned, and generally accepted Christian theory of the subject. The notions just mentioned are in themselves too shadowy and vague, they bear too plainly the marks of their mythologic pedigree, to admit of being worked into such a coherent and closely reasoned theory. Christian thought has simply played fast and loose with these conceptions, speaking in one breath of divine omnipotence, and in the next alluding to the conflict between good and evil in language fraught with Manichæism.

In recent times Mr. John Stuart Mill has shown a marked preference for the Manichæan view, and has stated it with clearness and consistency, because he is not hampered by the feeling that he ought to reach one conclusion rather than another. Mr. Mill does not urge his view upon the reader, nor even defend it as his own view, but simply suggests it as perhaps the view which is for the theist most free from difficulties and contradictions. Mr. Mill does

not, like the Manichæans, imagine a personified principle of evil; nor does he, like Plato, entertain a horror of what is sometimes, with amusing vehemence, stigmatized as "brute matter." He does not undertake to suggest how or why the divine power is limited; but he distinctly prefers the alternative which sacrifices the attribute of omnipotence in order to preserve in our conception of Deity the attribute of goodness. According to Mr. Mill, we may regard the all-wise and holy Deity as a creative energy that is perpetually at work in eliminating evil from the universe. His wisdom is perfect, his goodness is infinite, but his power is limited by some inexplicable viciousness in the original constitution of things which it must require a long succession of ages to overcome. In such a view Mr. Mill sees much that is ennobling. The humblest human being who resists an impulse to sin, or helps in the slightest degree to leave the world better than he found it, may actually be regarded as a

participator in the creative work of God; and thus each act of human life acquires a solemn significance that is almost overwhelming to contemplate.

These suggestions of Mr. Mill are extremely interesting, because he was the last great modern thinker whose early training was not influenced by that prodigious expansion of scientific knowledge which, since the middle of the nineteenth century, has taken shape in the doctrine of evolution. This movement began early enough to determine the intellectual careers of eminent thinkers born between 1820 and 1830, such as Spencer and Huxley. Mr. Mill was a dozen years too old for this. He was born at nearly the same time as Mr. Darwin, but his mental habits were formed too soon for him to profit fully by the new movement of thought; and although his attitude toward the new ideas was hospitable, they never fructified in his mind. While his thinking has been of great value to the world, much of it belongs to an era which we have now

left far behind. This is illustrated in the degree to which he was influenced by the speculations of Auguste Comte. Probably no two leaders of thought, whose dates of birth were scarcely a quarter of a century apart, were ever separated by such a stupendous gulf as that which intervenes between Auguste Comte and Herbert Spencer, and this fact may serve as an index to the rapidity of movement which has characterized the nineteenth century. Another illustration of the old-fashioned character of Mill's philosophy is to be seen in his use of Paley's argument from design in support of the belief in a beneficent Creator. Mill adopted this argument, and, as a professed free-thinker, carried it to the logical conclusion from which Paley, as a churchman, could not but shrink. This was the conclusion which I have already mentioned, that God's creative power has been limited by some inexplicable viciousness in the original constitution of things.

I feel as if one could not be too grateful

to Mr. Mill for having so neatly and sharply stated, in modern language and with modern illustrations, this old conclusion, which after all is substantially that of Plato and the Gnostics. For the shock which such a clear, bold statement gives to our religious feelings is no greater than the shock with which it strikes counter to our modern scientific philosophy. Suppose we could bring back to earth a Calvinist of the seventeenth century and question him. He might well say that the God which Mr. Mill offers us, shorn of the attribute of omnipotence, is no God at all. He would say with the Hebrew prophet, that God has created the evil along with the good, and that he has done so for a purpose which human reason, could it once comprehend all the conditions of the case, would most surely approve as infinitely wise and holy. Our Calvinist would ask who is responsible for the original constitution of things if not the Creator himself, and in supposing anything essentially vicious in that constitution, have not Plato

and the Gnostics and the Manichæans and Mr. Mill simply taken counsel of their ignorance? Nay, more, the Calvinist would declare that if we really understood the universe of which humanity is a part, we should find scientific justification for that supreme and victorious faith which cries, "Though he slay me, yet will I trust in him!" The man who has acquired such faith as this is the true freeman of the universe, clad in stoutest coat of mail against disaster and sophistry, — the man whom nothing can enslave, and whose guerdon is the serene happiness that can never be taken away.

IV

The Dramatic Unity of Nature

NOW in these strong assertions it seems to me that the Calvinist is much more nearly in accord with our modern knowledge than are Plato and Mill. It is not wise to hazard statements as to what the future may bring forth, but I do not see how the dualism implied in all these attempts to refer good and evil to different creative sources can ever be seriously maintained again. The advance of modern science carries us irresistibly to what some German philosophers call monism, but I prefer to call it monotheism. In getting rid of the Devil and regarding the universe as the multiform manifestation of a single all-pervading Deity, we become for the first time pure and uncompromising monotheists, — believers in the ever-living, unchange-

able, and all-wise Heavenly Father, in whom we may declare our trust without the faintest trace of mental reservation.

If we can truly take such a position, and hold it rationally, it is the modern science so apt to be decried by the bats and owls of orthodoxy that justifies us in doing so. For what is the philosophic purport of these beautiful and sublime discoveries with which the keen insight and patient diligence of modern students of science are beginning to be rewarded? What is the lesson that is taught alike by the correlation of forces, by spectrum analysis, by the revelations of chemistry as to the subtle behaviour of molecules inaccessible to the eye of sense, by the astronomy that is beginning to sketch the physical history of countless suns in the firmament, by the palæontology which is slowly unravelling the wonders of past life upon the earth through millions of ages? What is the grand lesson that is taught by all this? It is the lesson of the unity of nature. To learn it rightly is to learn that

all the things that we can see and know, in the course of our life in this world, are so intimately woven together that nothing could be left out without reducing the whole marvellous scheme to chaos. Whatever else may be true, the conviction is brought home to us that in all this endless multifariousness there is one single principle at work, that all is tending toward an end that was involved from the very beginning, if one can speak of beginnings and ends where the process is eternal. The whole universe is animated by a single principle of life, and whatever we see in it, whether to our half-trained understanding and narrow experience it may seem to be good or bad, is an indispensable part of the stupendous scheme. As Aristotle said, so long ago, in one of those characteristic flashes of insight into the heart of things in which no one has ever excelled him, in nature there is nothing that is out of place or interpolated, as in an ill-constructed drama.

To-day we can begin to realize how much

was implied in this prophetic hint of Aristotle's, for we are forced to admit that whatever may be the function of evil in this world, it is unquestionably an indispensable function, and not something interpolated from without. Whatever exists is part of the dramatic whole, and this can quickly be proved. The goodness in the world — all that we love and praise and emulate — we are ready enough to admit into our scheme of things, and to rest upon it our belief in God. The misery, the pain, the wickedness, we would fain leave out. But if there were no such thing as evil, how could there be such a thing as goodness? Or to put it somewhat differently, if we had never known anything but goodness, how could we ever distinguish it from evil? How could we recognize it as good? How would its quality of goodness in any wise interest or concern us? This question goes down to the bottom of things, for it appeals to the fundamental conditions according to which conscious intelligence exists at all.

Its answer will therefore be likely to help us. It will not enable us to solve the problem of evil, enshrouded as it is in a mystery impenetrable by finite intelligence, but it will help us to state the problem correctly; and surely this is no small help. In the mere work of purifying our intellectual vision there is that which heals and soothes us. To learn to see things without distortion is to prepare one's self for taking the world in the right mood, and in this we find strength and consolation.

V

What Conscious Life is made of

TO return to our question, how could we have good without evil, we must pause for a moment and inquire into the constitution of the human mind. What we call the soul, the mind, the conscious self, is something strange and wonderful. In our ordinary efforts to conceive it, invisible and impalpable as it is, we are apt to try so strenuously to divorce it from the notion of substance that it seems ethereal, unreal, ghostlike. Yet of all realities the soul is the most solid, sound, and undeniable. Thoughts and feelings are the fundamental facts from which there is no escaping. Our whole universe, from the sands on the seashore to the flaming suns that throng the Milky Way, is built up of sights and sounds, of tastes and odours, of

pleasures and pains, of sensations of motion and resistance either felt directly or inferred. This is no ghostly universe, but all intensely real as it exists in that intensest of realities, the human soul! Consciousness, the soul's fundamental fact, is the most fundamental of facts. But a truly marvellous affair is consciousness! The most general truth that we can assert with regard to it is this, that it exists only by virtue of incessant change. A state of consciousness that should continue through an appreciable interval of time without undergoing change would not be a state of consciousness. It would be unconsciousness.

This perpetual change, then, is what makes conscious life. It is only by virtue of this endless procession of fleeting phases of consciousness that the human soul exists at all. It is thus that we are made. Why we should have been made thus is a question aiming so far beyond our ken that it is idle to ask it. We might as well

inquire whether Infinite Power could have made twice two equal five. We must rest content with knowing that it is thus we were created; it is thus that the human soul exists. Just as dynamic astronomy rests upon the law of gravitation, just as physics is based upon the properties of waves, so the modern science of mind has been built upon the fundamental truth that consciousness exists only by virtue of unceasing change. Our conscious life is a stream of varying psychical states which quickly follow one another in a perpetual shimmer, with never an instant of rest. The elementary psychical states, indeed, lie below consciousness, or, as we say, they are sub-conscious. We may call these primitive pulsations the psychical molecules out of which are compounded the feelings and thoughts that well up into the full stream of consciousness. Just as in chemistry we explain the qualitative differences among things as due to diversities of arrangement among com-

pounded molecules and atoms, so in psychology we have come to see that thoughts and feelings in all their endless variety are diversely compounded of sub-conscious psychical molecules.

Musical sounds furnish us with a simple and familiar illustration of this. When the sounds of taps or blows impinge upon the ear slowly, at the rate of not more than sixteen in a second, they are cognized as separate and non-musical noises. When they pass beyond that rate of speed, they are cognized as a continuous musical tone of very low pitch; a state of consciousness which seems simple, but which we now see is really compound. As the speed of the blows increases, further qualitative differences arise; the musical tone rises in pitch until it becomes too acute for the ear to cognize, and thus vanishes from consciousness. But this is far from being the whole story; for the series of blows or pulsations make not only a single vivid fundamental tone, but also a multifarious com-

panion group of fainter overtones, and the diverse blending of these faint harmonics constitutes the whole difference in tone quality between the piano and the flute, the violin and the trumpet, or any other instruments. If you take up a violin and sound the F one octave above the treble staff, there are produced, in the course of a single second, several thousand psychical states which together make up the sensation of pitch, fifty-five times as many psychical states which together make up the sensation of tone quality, and an immense number of other psychical states which together make up the sensation of intensity. These psychical states are not, in any strict sense of the term, states of consciousness; for if they were to rise individually into consciousness, the result would be an immense multitude of sensations, and not a single apparently homogeneous sensation. There is no alternative but to conclude that in this case a seemingly simple state of consciousness is

in reality compounded of an immense multitude of sub-conscious psychical changes.

Now, what is thus true in the case of musical sounds is equally true of all states of consciousness whatever, both those that we call intellectual and those that we call emotional. All are highly compounded aggregates of innumerable minute sub-conscious psychical pulsations, if we may so call them. In every stream of human consciousness that we call a soul each second of time witnesses thousands of infinitely small changes, in which one fleeting group of pulsations in the primordial mind-stuff gives place to another and a different but equally fleeting group. Each group is unlike its immediate predecessor. The absence of difference would be continuance, and continuance means stagnation, blankness, negation, death. That ceaseless flutter, in which the quintescence of conscious life consists, is kept up by the perpetual introduction of the relations of likeness and unlikeness. Each one of the infinitesimal

changes is a little act of discrimination, a recognition of a unit of feeling as either like or unlike some other unit of feeling. So in these depths of the soul's life the arrangements and re-arrangements of units go on, while on the surface the results appear from moment to moment in sensations keen or dull, in perceptions clear or vague, in judgments wise or foolish, in memories gay or sad, in sordid or lofty trains of thought, in gusts of anger or thrills of love. The whole fabric of human thought and human emotion is built up out of minute sub-conscious discriminations of likenesses and unlikenesses, just as much as the material world in all its beauty is built up out of undulations among invisible molecules.

VI

Without the Element of Antagonism there could be no Consciousness, and therefore no World

WE may now come up out of these depths, accessible only to the plummet of psychologic analysis, and move with somewhat freer gait in the region of common and familiar experiences. It is an undeniable fact that we cannot know anything whatever except as contrasted with something else. The contrast may be bold and sharp, or it may dwindle into a slight discrimination, but it must be there. If the figures on your canvas are indistinguishable from the background, there is surely no picture to be seen. Some element of unlikeness, some germ of antagonism, some chance for discrimination, is essential to every act of knowing. I might

have illustrated this point concretely without all the foregoing explanation, but I have aimed at paying it the respect due to its vast importance. I have wished to show how the fact that we cannot know anything whatever except as contrasted with something else is a fact that is deeply rooted in the innermost structure of the human mind. It is not a superficial but a fundamental truth, that if there were no colour but red it would be exactly the same thing as if there were no colour at all. In a world of unqualified redness, our state of mind with regard to colour would be precisely like our state of mind in the present world with regard to the pressure of the atmosphere if we were always to stay in one place. We are always bearing up against the burden of this deep aerial ocean, nearly fifteen pounds upon every square inch of our bodies; but until we can get a chance to discriminate, as by climbing a mountain, we are quite unconscious of this heavy pressure. In the same way, if we knew but one colour we should

know no colour. If our ears were to be filled with one monotonous roar of Niagara, unbroken by alien sounds, the effect upon consciousness would be absolute silence. If our palates had never come in contact with any tasteful thing save sugar, we should know no more of sweetness than of bitterness. If we had never felt physical pain, we could not recognize physical pleasure. For want of the contrasted background its pleasurableness would be non-existent. And in just the same way it follows that without knowing that which is morally evil we could not possibly recognize that which is morally good. Of these antagonist correlatives, the one is unthinkable in the absence of the other. In a sinless and painless world, human conduct might possess more outward marks of perfection than any saint ever dreamed of; but the moral element would be lacking; the goodness would have no more significance in our conscious life than that load of atmosphere which we are always carrying about with us.

We are thus brought to a striking conclusion, the essential soundness of which cannot be gainsaid. In a happy world there must be sorrow and pain, and in a moral world the knowledge of evil is indispensable. The stern necessity for this has been proved to inhere in the innermost constitution of the human soul. It is part and parcel of the universe. To him who is disposed to cavil at the world which God has in such wise created, we may fairly put the question whether the prospect of escape from its ills would ever induce him to put off this human consciousness, and accept in exchange some form of existence unknown and inconceivable! The alternative is clear: on the one hand a world with sin and suffering, on the other hand an unthinkable world in which conscious life does not involve contrast.

The profound truth of Aristotle's remark is thus more forcibly than ever brought home to us. We do not find that evil has been interpolated into the universe from

without; we find that, on the contrary, it is an indispensable part of the dramatic whole. God is the creator of evil, and from the eternal scheme of things diabolism is forever excluded. Ormuzd and Ahriman have had their day and perished, along with the doctrine of special creations and other fancies of the untutored human mind. From our present standpoint we may fairly ask, What would have been the worth of that primitive innocence portrayed in the myth of the garden of Eden, had it ever been realized in the life of men? What would have been the moral value or significance of a race of human beings ignorant of sin, and doing beneficent acts with no more consciousness or volition than the deftly contrived machine that picks up raw material at one end, and turns out some finished product at the other? Clearly, for strong and resolute men and women an Eden would be but a fool's paradise. How could anything fit to be called *character* have ever been produced there? But for tasting the

forbidden fruit, in what respect could man have become a being of higher order than the beasts of the field? An interesting question is this, for it leads us to consider the genesis of the idea of moral evil in man.

VII

A Word of Caution

BEFORE we enter upon this topic a word of caution may be needed. I do not wish the purpose of the foregoing questions to be misunderstood. The serial nature of human thinking and speaking makes it impossible to express one's thought on any great subject in a solid block; one must needs give it forth in consecutive fragments, so that parts of it run the risk of being lost upon the reader or hearer, while other parts are made to assume undue proportions. Moreover, there are many minds that habitually catch at the fragments of a thought, and never seize it in the block; and in such manner do strange misconceptions arise. I never could have dreamed, until taught by droll experience, that the foregoing allusions to the

garden of Eden could be understood as a glorification of sin, and an invitation to my fellow-men to come forth with me and be wicked! But even so it was, on one occasion when I was trying, somewhat more scantily than here, to state the present case. In the midst of my endeavour to justify the grand spirit of faith which our fathers showed when from abysmal depths of affliction they never failed to cry that God doeth all things well, I was suddenly interrupted with queries as to just what percentage of sin and crime I regarded as needful for the moral equilibrium of the universe; how much did I propose to commit myself, how much would I advise people in general to commit, and just where would I have them stop! Others deemed it necessary to remind me that there is already too much suffering in the world, and we ought not to seek to increase it; that the difference between right and wrong is of great practical importance; and that if we try to treat evil as good we shall make good no better than evil.

When one has sufficiently recovered one's gravity, it is permissible to reply to such criticisms that the sharp antithesis between good and evil is essential to every step of my argument, which would entirely collapse if the antagonism were for one moment disregarded. The quantity of suffering in the world is unquestionably so great as to prompt us to do all in our power to diminish it; such we shall presently see must be the case in a world that proceeds through stages of evolution. When one reverently assumes that it was through some all-wise and holy purpose that sin was permitted to come into the world, it ought to be quite superfluous to add that the fulfilment of any such purpose demands that sin be not cherished, but suppressed. If one seeks, as a philosopher, to explain and justify God's wholesale use of death in the general economy of the universe, is one forsooth to be charged with praising murder as a fine art and with seeking to found a society of Thugs?

VIII

The Hermit and the Angel

THE simple-hearted monks of the Middle Ages understood, in their own quaint way, that God's methods of governing this universe are not always fit to be imitated by his finite creatures. In one of the old stories that furnished entertainment and instruction for the cloister it is said that a hermit and an angel once journeyed together. The angel was in human form and garb, but had told his companion the secret of his exalted rank and nature. Coming at nightfall to a humble house by the wayside, the two travellers craved shelter for the love of God. A dainty supper and a soft, warm bed were given them, and in the middle of the night the angel arose and strangled the kind host's infant son, who was quietly sleeping

in his cradle. The good hermit was paralyzed with amazement and horror, but dared not speak a word. The next night the two comrades were entertained at a fine mansion in the city, where the angel stole the superb golden cup from which his host had quaffed wine at dinner. Next day, while crossing the bridge over a deep and rapid stream, a pilgrim met the travellers. "Canst thou show us, good father," said the angel, "the way to the next town?" As the pilgrim turned to point it out, this terrible being caught him by the shoulder and flung him into the river to drown. "Verily," thought the poor hermit, "it is a devil that I have here with me, and all his works are evil;" but fear held his tongue, and the twain fared on their way till the sun had set and snow began to fall, and the howling of wolves was heard in the forest hard by. Presently the bright light coming from a cheerful window gave hope of a welcome refuge; but the surly master of the house turned the travellers away from his door

with curses and foul gibes. "Yonder is my pig-sty for dirty vagrants like you." So they passed that night among the swine; and in the morning the angel went to the house and thanked the master for his hospitality, and gave him for a keepsake (thrifty angel!) the stolen goblet. Then did the hermit's wrath and disgust overcome his fears, and he loudly upbraided his companion. "Get thee gone, wretched spirit!" he cried. "I will have no more of thee. Thou pretendest to be a messenger from heaven, yet thou requitest good with evil, and evil with good!" Then did the angel look upon him with infinite compassion in his eyes. "Listen," said he, "short-sighted mortal. The birth of that infant son had made the father covetous, breaking God's commandments in order to heap up treasures which the boy, if he had lived, would have wasted in idle debauchery. By my act, which seemed so cruel, I saved both parent and child. The owner of the goblet had once been abstemious, but was fast

becoming a sot; the loss of his cup has set him to thinking, and he will mend his ways. The poor pilgrim, unknown to himself, was about to commit a mortal sin, when I interfered and sent his unsullied soul to heaven. As for the wretch who drove God's children from his door, he is, indeed, pleased for the moment with the bauble I left in his hands; but hereafter he will burn in hell." So spoke the angel; and when he had heard these words the hermit bowed his venerable head and murmured, "Forgive me, Lord, that in my ignorance I misjudged thee."

I suspect that, with all our boasted science, there is still much wisdom for us in the humble childlike piety of the Gesta Romanorum. To say that the ways of Providence are inscrutable is still something more than an idle platitude, and there still is room for the belief that, could we raise the veil that enshrouds eternal truth, we should see that behind nature's cruelest works there are secret springs of

divinest tenderness and love. In this trustful mood we may now return to the question as to the genesis of the idea of moral evil, and its close connection with man's rise from a state of primeval innocence.

IX

Man's Rise from the Innocence of Brutehood

WE have first to note that in various ways the action of natural selection has been profoundly modified in the course of the development of mankind from a race of inferior creatures. One of the chief factors in the production of man was the change that occurred in the direction of the working of natural selection, whereby in the line of man's direct ancestry the variations in intelligence came to be seized upon, cherished, and enhanced, to the comparative neglect of variations in bodily structure. The physical differences between man and ape are less important than the physical differences between African and South American apes. The latter belong to different zoölogical families, but the former do not. Zoölogically, man is

simply one genus in the old-world family of apes. Psychologically, he has travelled so far from apes that the distance is scarcely measurable. This transcendent contrast is primarily due to the change in the direction of the working of natural selection. The consequences of this change were numerous and far-reaching. One consequence was that gradual lengthening of the plastic period of infancy which enabled man to became a progressive creature, and organized the primeval semi-human horde into definite family groups. I have elsewhere expounded this point, and it is known as my own especial contribution to the theory of evolution.

Another associated consequence, which here more closely concerns us, was the partial stoppage of the process of natural selection in remedying unfitness. A quotation from Herbert Spencer will help us to understand this partial stoppage: "As fast as the faculties are multiplied, so fast does it become possible for the several mem-

bers of a species to have various kinds of superiorities over one another. While one saves its life by higher speed, another does the like by clearer vision, another by keener scent, another by quicker hearing, another by greater strength, another by unusual power of enduring cold or hunger, another by special sagacity, another by special timidity, another by special courage. . . . Now . . . each of these attributes, giving its possessor an extra chance of life, is likely to be transmitted to posterity. But" it is not nearly so likely to be increased by natural selection. For "if those members of the species which have but ordinary" or even deficient shares of some valuable attribute "nevertheless survive by virtue of other superiorities which they severally possess, then it is not easy to see how this particular attribute can be" enhanced in subsequent generations by natural selection.[1]

These considerations apply especially to the human race with its multitudinous capa-

[1] Biology, i. 454.

cities, and I can better explain the case by a crude and imperfect illustration than by a detailed and elaborate statement. If an individual antelope falls below the average of the herd in speed, he is sure to become food for lions, and thus the high average of speed in the herd is maintained by natural selection. But if an individual man becomes a drunkard, though his capabilities be ever so much curtailed by this vice, yet the variety of human faculty furnishes so many hooks with which to keep one's hold upon life that he may sin long and flagrantly without perishing; and if the drunkard survives, the action of natural selection in weeding out drunkenness is checked. There is thus a wide interval between the highest and lowest degrees of completeness in living that are compatible with maintenance of life. Mankind has so many other qualities beside the bad ones, which enable it to subsist and achieve progress in spite of them, that natural selection — which always works through death — cannot come into play.

Now it is because of this *interval* between the highest and lowest degrees of completeness of living that are compatible with the mere maintenance of life, that men can be distinguished as morally bad or morally good. In inferior animals, where there is no such interval, there is no developed morality or conscience, though in a few of the higher ones there are the germs of these things. Morality comes upon the scene when there is an alternative offered of leading better lives or worse lives. And just as up to this point the actions of the forefathers of mankind have been determined by the pursuit of pleasure and avoidance of pain, so now they begin to be practically determined by the pursuit of goodness and avoidance of evil. This rise from a bestial to a moral plane of existence involves the acquirement of the knowledge of good and evil. Conscience is generated to play a part analogous to that played by the sense of pain in the lower stages of life, and to keep us from wrong doing. To the mere

love of life, which is the conservative force that keeps the whole animal world in existence, there now comes gradually to be superadded the feeling of religious aspiration, which is nothing more nor less than the yearning after the highest possible completeness of spiritual life. In the lower stages of human development this religious aspiration has as yet but an embryonic existence, and moral obligations are still but imperfectly recognized. It is only after long ages of social discipline, fraught with cruel afflictions and grinding misery, that the moral law becomes dominant and religious aspiration intense and abiding in the soul. When such a stage is reached, we have at last in man a creature different in kind from his predecessors, and fit for an everlasting life of progress, for a closer and closer communion with God in beatitude that shall endure.

X

The Relativity of Evil

AS we survey the course of this wonderful evolution, it begins to become manifest that moral evil is simply the characteristic of the lower state of living as looked at from the higher state. Its existence is purely relative, yet it is profoundly real, and in a process of perpetual spiritual evolution its presence in some hideous form throughout a long series of upward stages is indispensable. Its absence would mean stagnation, quiescence, unprogressiveness. For the moment we exercise conscious choice between one course of action and another, we recognize the difference between better and worse, we foreshadow the whole grand contrast between good and bad. In the process of spiritual evolution, therefore, evil must needs be present. But

the nature of evolution also requires that it should be evanescent. In the higher stages that which is worse than the best need no longer be positively bad. After the nature of that which the upward-striving soul abhors has been forever impressed upon it, amid the long vicissitudes of its pilgrimage through the dark realms of sin and expiation, it is at length equipped for its final sojourn

"In the blest kingdoms meek of joy and love."

From the general analogies furnished in the process of evolution, we are entitled to hope that, as it approaches its goal and man comes nearer to God, the fact of evil will lapse into a mere memory, in which the shadowed past shall serve as a background for the realized glory of the present.

Thus we have arrived at the goal of my argument. We can at least begin to realize distinctly that unless our eyes had been opened at some time, so that we might come to know the good and the evil, we should never have become fashioned in

God's image. We should have been the denizens of a world of puppets, where neither morality nor religion could have found place or meaning. The mystery of evil remains a mystery still, but it is no longer a harsh dissonance such as greeted the poet's ear when the doors of hell were thrown open; for we see that this mystery belongs among the profound harmonies in God's creation. This reflection may have in it something that is consoling as we look forth upon the ills of the world. Many are the pains of life, and the struggle with wickedness is hard; its course is marked with sorrow and tears. But assuredly its deep impress upon the human soul is the indispensable background against which shall be set hereafter the eternal joys of heaven!

THE COSMIC ROOTS OF LOVE AND SELF-SACRIFICE

O abbondante grazia, ond' io presunsi
Ficcar lo viso per la luce eterna
Tanto, che la veduta vi consunsi!
Nel suo profondo vidi che s' interna,
Legato con amore in un volume,
Ciò che per l' universo si squaderna.

DANTE, *Paradiso*, xxxiii. 82.

I

The Summer Field, and what it tells us

THERE are few sights in Nature more restful to the soul than a daisied field in June. Whether it be at the dewy hour of sunrise, with blithe matin songs still echoing among the tree-tops, or while the luxuriant splendour of noontide fills the delicate tints of the early foliage with a pure glory of light, or in that more pensive time when long shadows are thrown eastward and the fresh breath of the sea is felt, or even under the solemn mantle of darkness, when all forms have faded from sight and the night air is musical with the murmurs of innumerable insects, amid all the varying moods through which the daily cycle runs, the abiding sense is of unalloyed happiness, the pro-

found tranquillity of mind and heart that nothing ever brings save the contemplation of perfect beauty. One's thought is carried back for the moment to that morning of the world when God looked upon his work and saw that it was good. If in the infinite and eternal Creative Energy one might imagine some inherent impulse perpetually urging toward fresh creation, what could it be more likely to be than the divine contentment in giving objective existence to the boundless and subtle harmonies whereof our world is made? That it is a world of perfect harmony and unsullied beauty, who can doubt as he strolls through this summer field? As our thought plays lightly with its sights and sounds, there is nothing but gladness in the laugh of the bobolink; the thrush's tender note tells only of the sweet domestic companionship of the nest; creeping and winged things emerging from their grubs fill us with the sense of abounding life; and the myriad buttercups, hallowed with vague memories of June days in

childhood, lose none of their charm in reminding us of the profound sympathy and mutual dependence in which the worlds of flowers and insects have grown up. The blades of waving grass, the fluttering leaves upon the lilac bush, appeal to us with rare fascination; for the green stuff that fills their cellular tissues, and the tissues of all green things that grow, is the world's great inimitable worker of wonders; its marvellous alchemy takes dead matter and breathes into it the breath of life. But for that magician chlorophyll, conjuring with sunbeams, such things as animal life and conscious intelligence would be impossible; there would be no problems of creation, nor philosopher to speculate upon them. Thus the delight that sense impression gives, as we wander among buttercups and daisies, becomes deepened into gratitude and veneration, till we quite understand how the rejuvenescence of Nature should in all ages have aroused men to acts of worship, and should call forth from modern masters of music, the most

religious of the arts of expression, outbursts of sublimest song.

And yet we need but come a little closer to the facts to find them apparently telling us a very different story. The moment we penetrate below the superficial aspect of things the scene is changed. In the folk-lore of Ireland there is a widespread belief in a fairyland of eternal hope and brightness and youth situated a little way below the roots of the grass. From that land of Tir nan Og, as the peasants call it, the secret springs of life shoot forth their scions in this visible world, and thither a few favoured mortals have now and then found their way. It is into no blest country of Tir nan Og that our stern science leads us, but into a scene of ugliness and hatred, strife and massacre. Macaulay tells of the battlefield of Neerwinden, that the next summer after that frightful slaughter the whole country-side was densely covered with scarlet poppies, which people beheld with awe as a token of wrath in heaven over the deeds

wrought on earth by human passions. Any summer field, though mantled in softest green, is the scene of butchery as wholesale as that of Neerwinden and far more ruthless. The life of its countless tiny denizens is one of unceasing toil, of crowding and jostling, where the weaker fall unpitied by the way, of starvation from hunger and cold, of robbery utterly shameless and murder utterly cruel. That green sward in taking possession of its territory has exterminated scores of flowering plants of the sort that human economics and æsthetics stigmatize as weeds; nor do the blades of the victorious army dwell side by side in amity, but in their eagerness to dally with the sunbeams thrust aside and supplant one another without the smallest compunction. Of the crawling insects and those that hum through the air, with the quaint snail, the burrowing worm, the bloated toad, scarce one in a hundred but succumbs to the buffets of adverse fortune before it has achieved maturity and left offspring to re-

place it. The early bird, who went forth in quest of the worm, was lucky if at the close of a day as full of strife and peril as ever knight-errant encountered, he did not himself serve as a meal for some giant foe in the gloaming. When we think of the hawk's talons buried in the breast of the wren, while the relentless beak tears the little wings from the quivering, bleeding body, our mood toward Nature is changed, and we feel like recoiling from a world in which such black injustice, such savage disregard for others, is part of the general scheme.

II

Seeming Wastefulness of the Cosmic Process

BUT as we look still further into the matter, our mood is changed once more. We find that this hideous hatred and strife, this wholesale famine and death, furnish the indispensable conditions for the evolution of higher and higher types of life. Nay more, but for the pitiless destruction of all individuals that fall short of a certain degree of fitness to the circumstances of life into which they are born, the type would inevitably degenerate, the life would become lower and meaner in kind. Increase in richness, variety, complexity of life is gained only by the selection of variations above or beyond a certain mean, and the prompt execution of a death sentence upon all the rest. The principle of natural selection is in one respect intensely Calvin-

istic; it elects the one and damns the ninety and nine. In these processes of Nature there is nothing that savours of communistic equality; but "to him that hath shall be given, and from him that hath not shall be taken away even that which he hath." Through this selection of a favoured few, a higher type of life — or at all events a type in which there is more life — is attained in many cases, but not always. Evolution and progress are not synonymous terms. The survival of the fittest is not always a survival of the best or of the most highly organized. The environment is sometimes such that increase of fitness means degeneration of type, and the animal and vegetable worlds show many instances of degeneration. One brilliant instance is that which has preserved the clue to the remote ancestry of the vertebrate type. The molluscoid ascidian, rooted polyp-like on the sea beach in shallow water, has an embryonic history which shows that its ancestors had once seen better days, when they darted to and

fro, fishlike, through the waves, with the prophecy of a vertebrate skeleton within them. This is a case of marked degeneration. More often survival of the fittest simply preserves the type unchanged through long periods of time. But now and then under favourable circumstances it raises the type. At all events, whenever the type is raised, it is through survival of the fittest, implying destruction of all save the fittest.

This last statement is probably true of all plants and of all animals except that as applied to the human race it needs some transcendently important qualifications which students of evolution are very apt to neglect. I shall by and by point out these qualifications. At present we may note that the development of civilization, on its political side, has been a stupendous struggle for life, wherein the possession of certain physical and mental attributes has enabled some tribes or nations to prevail over others, and to subject or exterminate them. On its industrial side the struggle

has been no less fierce; the evolution of higher efficiency through merciless competition is a matter of common knowledge. Alike in the occupations of war and in those of peace, superior capacity has thriven upon victories in which small heed has been paid to the wishes or the welfare of the vanquished. In human history perhaps no relation has been more persistently repeated than that of the hawk and the wren. The aggression has usually been defended as in the interests of higher civilization, and in the majority of cases the defence has been sustained by the facts. It has indeed very commonly been true that the survival of the strongest is the survival of the fittest.

Such considerations affect our mood toward Nature in a way that is somewhat bewildering. On the one hand, as we recognize in the universal strife and slaughter a stern discipline through which the standard of animate existence is raised and the life of creatures variously enriched, we be-

come to some extent reconciled to the facts. Assuming, as we all do, that the attainment of higher life is in itself desirable, our minds cannot remain utterly inhospitable towards things, however odious in themselves, that help toward the desirable end. Since we cannot rid the world of them, we acquiesce in their existence as part of the machinery of God's providence, the intricacies of which our finite minds cannot hope to unravel. On the other hand, a thought is likely to arise which in days gone by we should have striven to suppress as too impious for utterance; but it is wiser to let such thoughts find full expression, for only thus can we be sure of understanding the kind of problem we are trying to solve. Is not, then, this method of Nature, which achieves progress only through misery and death, an exceedingly brutal and clumsy method? Life, one would think, must be dear to the everlasting Giver of life, yet how cheap it seems to be held in the general scheme of things! In order that some race of moths may at-

tain a certain fantastic contour and marking of their wings, untold thousands of moths are doomed to perish prematurely. Instead of making the desirable object once for all, the method of Nature is to make something else and reject it, and so on through countless ages, till by slow approximations the creative thought is realized. Nature is often called thrifty, yet could anything be more prodigal or more cynical than the waste of individual lives? Does it not remind one of Charles Lamb's famous story of the Chinaman whose house accidentally burned down and roasted a pig, whereupon the dainty meat was tasted and its fame spread abroad until epicures all over China were to be seen carrying home pigs and forthwith setting fire to their houses? We need but add that the custom thus established lasted for centuries, during which every dinner of pig involved the sacrifice of a homestead, and we seem to have a close parody upon the wastefulness of Nature, or of what is otherwise called in these days

the Cosmic Process. Upon such a view as this the Cosmic Process appears in a high degree unintelligent, not to say immoral.

III

Caliban's Philosophy

POLYTHEISM easily found a place for such views as these, inasmuch as it could explain the unseemly aspects of Nature offhand by a reference to malevolent deities. With Browning's Caliban, in his meditations upon Setebos, that god whom he conceived in his own image, the recklessness of Nature is mockery engendered half in spite, half in mere wantonness. Setebos, he says,

> "is strong and Lord,
> Am strong myself compared to yonder crabs
> That march now from the mountain to the sea;
> Let twenty pass, and stone the twenty-first,
> Loving not, hating not, just choosing so.
> Say, the first straggler that boasts purple spots
> Shall join the file, one pincer twisted off;
> Say, this bruised fellow shall receive a worm,
> And two worms he whose nippers end in red;
> As it likes me each time, I do: So He."

Such is the kind of philosophy that commends itself to the beastly Caliban, as he sprawls in the mire with small eft things creeping down his back. His half-fledged mind can conceive no higher principle of action — nothing more artistic, nothing more masterful — than wanton mockery, and naturally he attributes it to his God; it is for him a sufficient explanation of that little fragment of the Cosmic Process with which he comes into contact.

IV

Can it be that the Cosmic Process has no Relation to Moral Ends?

BUT as long as we confine our attention to the universal struggle for life and the survival of the fittest, without certain qualifications presently to be mentioned, it is difficult for the most profound intelligence to arrive at conclusions much more satisfactory than Caliban's. If the spirit shown in Nature's works as thus contemplated is not one of wanton mockery, it seems at any rate to be a spirit of stolid indifference. It indicates a Blind Force rather than a Beneficent Wisdom at the source of things. It is in some such mood as this that Huxley tells us, in his famous address delivered at Oxford, in 1893, that there is no sanction for morality in the Cosmic Process. "Men in

society," he says, "are undoubtedly subject to the cosmic process. As among other animals, multiplication goes on without cessation and involves severe competition for the means of support. The struggle for existence tends to eliminate those less fitted to adapt themselves to the circumstances of their existence. The strongest, the most self-assertive, tend to tread down the weaker. . . . Social progress means a checking of the cosmic process at every step and the substitution for it of another, which may be called the ethical process; the end of which is not the survival of those who may happen to be the fittest, in respect of the whole of the conditions which exist, but of those who are ethically the best." Again, says Huxley, "let us understand, once for all, that the ethical progress of society depends, not on imitating the cosmic process, still less in running away from it, but in combating it." And again he tells us that while the moral sentiments have undoubtedly been evolved,

yet since "the immoral sentiments have no less been evolved, there is so far as much natural sanction for the one as for the other." And yet again, "the cosmic process has no sort of relation to moral ends."

When these statements were first made they were received with surprise, and they have since called forth much comment, for they sound like a retreat from the position which an evolutionist is expected to hold. They distinctly assert a breach of continuity between evolution in general and the evolution of Man in particular; and thus they have carried joy to the hearts of sundry theologians, of the sort that like to regard Man as an infringer upon Nature. If there is no natural sanction for morality, then the sanction must be supernatural, and forthwith such theologians greet Huxley as an ally!

They are mistaken, however. Huxley does not really mean to assert any such breach of continuity as is here suggested. In a footnote to his printed address he

makes a qualification which really cancels the group of statements I have quoted. "Of course," says Huxley, "strictly speaking, social life and the ethical process, in virtue of which it advances toward perfection, are part and parcel of the general process of evolution." Of course they are; and of course the general process of evolution is the cosmic process, it is Nature's way of doing things. But when my dear Huxley a moment ago was saying that the "cosmic process has no sort of relation to moral ends," he was using the phrase in a more restricted sense; he was using it as equivalent to what Darwin called "natural selection," what Spencer called "survival of the fittest," which is only one part of the cosmic process. Now most assuredly survival of the fittest, as such, has no sort of relation to moral ends. Beauty and ugliness, virtue and vice, are all alike to it. Side by side with the exquisite rose flourishes the hideous tarantula, and in too many cases the villain's chances of livelihood are

better than the saints. As I said a while ago, if we confine our attention to the survival of the fittest in the struggle for existence, we are not likely to arrive at conclusions much more satisfactory than Caliban's

"As it likes me each time, I do: So He."

In such a universe we may look in vain for any sanction for morality, any justification for love and self-sacrifice; we find no hope in it, no consolation; there is not even dignity in it, nothing whatever but resistless all-producing and all-consuming energy.

Such a universe, however, is not the one in which we live. In the cosmic process of evolution, whereof our individual lives are part and parcel, there are other agencies at work besides natural selection, and the story of the struggle for existence is far from being the whole story. I have thus far been merely stating difficulties; it is now time to point out the direction in which we are to look for a solution of

them. I think it can be shown that the principles of morality have their roots in the deepest foundations of the universe, that the cosmic process is ethical in the profoundest sense, that in that far-off morning of the world, when the stars sang together and the sons of God shouted for joy, the beauty of self-sacrifice and disinterested love formed the chief burden of the mighty theme.

V

First Stages in the Genesis of Man

LET us begin by drawing a correct though slight outline sketch of what the cosmic process of evolution has been. It is not strange that when biologists speak of evolution they should often or usually have in mind simply the modifications wrought in plants and animals by means of natural selection. For it was by calling attention to such modifications that Darwin discovered a true cause of the origin of species by physiological descent from allied species. Thus was demonstrated the fact of evolution in its most important province; men of science were convinced that the higher forms of life are derived from lower forms, and the old notion of special creations was exploded once and forever. This was a great scientific

achievement, one of the greatest known to history, and it is therefore not strange that language should often be employed as if Evolutionism and Darwinism were synonymous. Yet not only are there extensive regions in the doctrine of evolution about which Darwin knew very little, but even as regards the genesis of species his theory was never developed in his own hands so far as to account satisfactorily for the genesis of man.

It must be borne in mind that while the natural selection of physical variations will go far toward explaining the characteristics of all the plants and all the beasts in the world, it remains powerless to account for the existence of man. Natural selection of physical variations might go on for a dozen eternities without any other visible result than new forms of plant and beast in endless and meaningless succession. The physical variations by which man is distinguished from apes are not great. His physical relationship with the ape is closer

than that between cat and dog, which belong to different families of the same order; it is more like that between cat and leopard, or between dog and fox, different genera in the same family. But the moment we consider the minds of man and ape, the gap between the two is immeasurable. Mr. Mivart has truly said that, with regard to their total value in nature, the difference between man and ape transcends the difference between ape and blade of grass. I should be disposed to go further and say, that while for zoölogical man you can hardly erect a distinct family from that of the chimpanzee and orang, on the other hand, for psychological man you must erect a distinct kingdom; nay, you must even dichotomize the universe, putting Man on one side and all things else on the other. How can this overwhelming contrast between psychical and physical difference be accounted for? The clue was furnished by Alfred Russel Wallace, the illustrious co-discoverer of natural selection. Wallace

saw that along with the general development of mammalian intelligence a point must have been reached in the history of one of the primates, when variations of intelligence were more profitable to him than variations in body. From that time forth that primate's intelligence went on by slow increments acquiring new capacity, while his body changed but little. When once he could strike fire, and chip a flint, and use a club, and strip off the bear's hide to cover himself, there was clearly no further use in thickening his own hide, or lengthening and sharpening his claws. Natural selection is the keenest capitalist in the universe; she never loses an instant in seizing the most profitable place for investment, and her judgment is never at fault. Forthwith, for a million years or more she invested all her capital in the psychical variations of this favoured primate, making little change in his body except so far as to aid in the general result, until by and by something like human intelligence of a low

grade, like that of the Australian or the Andaman islander, was achieved. The genesis of humanity was by no means yet completed, but an enormous gulf had been crossed.

After throwing out this luminous suggestion Mr. Wallace never followed it up as it admitted and deserved. It is too much to expect one man to do everything, and his splendid studies in the geographical distribution of organisms may well have left him little time for work in this direction. Who can fail to see that the selection of psychical variations, to the comparative neglect of physical variations, was the opening of a new and greater act in the drama of creation? Since that new departure the Creator's highest work has consisted not in bringing forth new types of body, but in expanding and perfecting the psychical attributes of the one creature in whose life those attributes have begun to acquire predominance. Along this human line of ascent there is no occasion for any further

genesis of species, all future progress must continue to be not zoölogical, but psychological, organic evolution gives place to civilization. Thus in the long series of organic beings Man is the last; the cosmic process, having once evolved this masterpiece, could thenceforth do nothing better than to perfect him.

VI

The Central Fact in the Genesis of Man

THIS conclusion, which follows irresistibly from Wallace's theorem, that in the genesis of Humanity natural selection began to follow a new path, already throws a light of promise over our whole subject, like the rosy dawn of a June morning. But the explanation of the genesis of Humanity is still far from complete. If we compare man with any of the higher mammals, such as dogs and horses and apes, we are struck with several points of difference: *first*, the greater progressiveness of man, the widening of the interval by which one generation may vary from its predecessor; *secondly*, the definite grouping in societies based on more or less permanent family relationships, instead of the indefinite grouping in miscellaneous herds or

packs; *thirdly*, the possession of articulate speech; *fourthly*, the enormous increase in the duration of infancy, or the period when parental care is needed. Twenty-four years ago, in a course of lectures given yonder in Holden Chapel, I showed that the circumstance last named is the fundamental one, and the others are derivative. It is the prolonged infancy that has caused the progressiveness and the grouping into definite societies, while the development of language was a consequence of the increasing intelligence and sociality thus caused. In the genesis of Humanity the central fact has been the increased duration of infancy. Now, can we assign for that increased duration an adequate cause? I think we can. The increase of intelligence is itself such a cause. A glance at the animal kingdom shows us no such thing as infancy among the lower orders. It is with warm-blooded birds and mammals that the phenomena of infancy and the correlative parental care really begin.

VII

The Chief Cause of Man's lengthened Infancy

THE reason for this is that any creature's ability to perceive and to act depends upon the registration of experiences in his nerve-centres. It is either individual or ancestral experience that is thus registered; or, strictly speaking, it is both. It is of the first importance that this point should be clearly understood, and therefore a few words of elementary explanation will not be superfluous.

When you learn to play the piano, you gradually establish innumerable associations between printed groups of notes and the corresponding keys on the key-board, and you also train the fingers to execute a vast number of rapid and complicated motions. The process is full of difficulty, and involves

endless repetition. After some years perhaps you can play at sight and with almost automatic ease a polonaise of Liszt or a ballad of Chopin. Now this result is possible only because of a bodily change which has taken place in you. Countless molecular alterations have been wrought in the structure of sundry nerves and muscles, especially in the gray matter of sundry ganglia, or nerve-centres. Every ganglion concerned in the needful adjustments of eyes and fingers and wrists, or in the perception of musical sounds, has undergone a change more or less profound. The nature of the change is largely a matter of speculation; but that point need not in any way concern us. It is enough for us to know that there is such a change, and that it is a registration of experiences. The pianist has registered in the intimate structure of his nervous system a world of experiences entirely foreign to persons unfamiliar with the piano; and upon this registration his capacity depends.

Now the same explanation applies to all bodily movements whatever, whether complicated or simple. In writing, in walking, in talking, we are making use of nervous registrations that have been brought about by an accumulation of experiences. To pick up a pencil from the table may seem a very simple act, yet a baby cannot do it. It has been made possible only by the education of the eyes, of the muscles that move the eyes, of the arm and hand, and of the nerve-centres that coördinate one group of movements with another. All this multiform education has consisted in a gradual registration of experiences. In like manner all the actions of man upon the world about him are made up of movements, and every such movement becomes possible only when a registration is effected in sundry nerve-centres.

But this is not the whole story. The case is undoubtedly the same with those visceral movements, involuntary and in great part unconscious, which sustain life;

the beating of the heart, the expansion and contraction of the lungs, the slight changes of calibre in the blood-vessels, even the movements of secretion that take place in glands. All these actions are governed by nerves, and these nerves have had to be educated to their work. This education has been a registration of experiences chiefly ancestral, throughout an enormous past, practically since the beginnings of vertebrate life.

With the earlier and simpler forms of animal existence these visceral movements are the only ones, or almost the only ones, that have to be made. Presently the movements of limbs and sense organs come to be added, and as we rise in the animal scale, these movements come to be endlessly various and complex, and by and by implicate the nervous system more and more deeply in complex acts of perception, memory, reasoning, and volition. Obviously, therefore, in the development of the individual organism the demands of the nervous system upon

the vital energies concerned in growth must come to be of paramount importance, and in providing for them the entire embryonic life must be most profoundly and variously affected. Though we may be unable to follow the processes in detail, the truth of this general statement is plain and undeniable.

I say, then, that when a creature's intelligence is low, and its experience very meagre, consisting of a few simple perceptions and acts that occur throughout life with monotonous regularity, all the registration of this experience gets effected in the nerve-centres of its offspring before birth, and they come into the world fully equipped for the battle of life, like the snapping turtle, which snaps with decisive vigour as soon as it emerges from the egg. Nothing is left plastic to be finished after birth, and so the life of each generation is almost an exact repetition of its predecessor. But when a creature's intelligence is high, and its experience varied and complicated, the registration of all this

experience in the nerve-centres of its offspring does not get accomplished before birth. There is not time enough. The most important registrations, such as those needed for breathing and swallowing and other indispensable acts, are fully effected; others, such as those needed for handling and walking, are but partially effected; others, such as those involved in the recognition of creatures not important as enemies or prey, are left still further from completion. Much is left to be done by individual experience after birth. The animal, when first born, is a baby dependent upon its mother's care. At the same time its intelligence is far more plastic, and it remains far more teachable, than the lower animal that has no babyhood. Dogs and horses, lions and elephants, often increase in sagacity until late in life; and so do apes, which, along with a higher intelligence than any other dumb animals, have a much longer babyhood.

We are now prepared to appreciate the

marvellous beauty of Nature's work in bringing Man upon the scene. Nowhere is there any breach of continuity in the cosmic process. First we have natural selection at work throughout the organic world, bringing forth millions of species of plant and animal, seizing upon every advantage, physical or mental, that enables any species to survive in the universal struggle. So far as any outward observer, back in the Cretaceous or early Eocene periods, could surmise, this sort of confusion might go on forever. But all at once, perhaps somewhere in the upper Eocene or lower Miocene, it appears that among the primates, a newly developing family already distinguished for prehensile capabilities, one genus is beginning to sustain itself more by mental craft and shiftiness than by any physical characteristic. Forthwith does natural selection seize upon any and every advantageous variation in this craft and shiftiness, until this favoured genus of primates, this *Homo Alalus*, or speechless

man, as we may call him, becomes pre-eminent for sagacity, as the mammoth is preëminent for bulk, or the giraffe for length of neck.

VIII

Some of its Effects

IN doing this, natural selection has unlocked a door and let in a new set of causal agencies. As Homo Alalus grows in intelligence and variety of experience, his helpless babyhood becomes gradually prolonged, and passes not into sudden maturity, but into a more or less plastic intermediate period of youth. Individual experience, as contrasted with ancestral experience, counts for much more than ever before in shaping his actions, and thus he begins to become progressive. He can learn many more new ways of doing things in a hundred thousand years than any other creature could have done in a much longer time. Thus the rate of progress is enhanced, the increasing intelligence of Homo Alalus further lengthens

his plastic period of life, and this in turn further increases his intelligence and emphasizes his individuality. The evidence is abundant that Homo Alalus, like his simian cousins, was a gregarious creature, and it is not difficult to see how, with increasing intelligence, the gestures and grunts used in the horde for signalling must come to be clothed with added associations of meaning, must gradually become generalized as signs of conceptions. This invention of spoken language, the first invention of nascent humanity, remains to this day its most fruitful invention. Henceforth ancestral experience could not simply be transmitted through its inheritable impress upon the nervous system, but its facts and lessons could become external materials and instruments of education. Then the children of Homo Alalus, no longer speechless, began to accumulate a fund of tradition, which in the fulness of time was to bloom forth in history and poetry, in science and theology. From the outset the acquisition of speech

must greatly have increased the rate of progress, and enhanced the rudimentary sociality.

With the lengthening of infancy the period of maternal help and watchfulness must have lengthened in correspondence. Natural selection must keep those two things nicely balanced, or the species would soon become extinct. But Homo Alalus had not only a mother, but brethren and sisters; and when the period of infancy became sufficiently long, there were a series of Homunculi Alali, the eldest of whom still needed more or less care while the third and the fourth were arriving upon the scene. In this way the sentiment of maternity became abiding. The cow has strong feelings of maternal affection for periods of a few weeks at a time, but lapses into indifference and probably cannot distinguish her grown-up calves as sustaining any nearer relation to herself than other members of the herd. But Femina Alala, with her vastly enlarged intelligence, is

called upon for the exercise of maternal affection until it becomes a permanent part of her nature. In the same group of circumstances begins the permanency of the marital relation. The warrior-hunter grows accustomed to defending the same wife and children and to helping them in securing food. Cases of what we may term wedlock, arising in this way, occur sporadically among apes; its thorough establishment, however, was not achieved until after the genesis of Humanity had been completed in most other respects. The elaborate researches of Westermarck have proved that permanent marriage exists even among savages; it did not prevail, however, until the advanced stage of culture represented by the Aztecs in aboriginal America and the Neolithic peoples of ancient Europe. As for strict monogamy, it is a comparatively late achievement of civilization. What the increased and multiplied duration of infancy at first accomplished was the transformation of miscellaneous hordes

of Homines Alali into organized clans recognizing kinship through the mother, as exemplified among nearly all American Indians when observed by Europeans.

Thus by gradual stages we have passed from four-footed existence into Human Society, and once more I would emphasize the fact that nowhere do we find any breach of continuity, but one factor sets another in operation, which in turn reacts upon the first, and so on in a marvellously harmonious consensus. Surely if there is anywhere in the universe a story matchless for its romantic interest, it is the story of the genesis of Man, now that we are at length beginning to be able to decipher it. We see that there is a good deal more in it than mere natural selection. At bottom, indeed, it is all a process of survival of the fittest, but the secondary agencies we have been considering have brought us to a point where our conception of the Struggle for Life must be enlarged. Out of the manifold compounding and recompounding of

primordial clans have come the nations of mankind in various degrees of civilization, but already in the clan we find the ethical process at work. The clan has a code of morals well adapted to the conditions amid which it exists. There is an ethical sentiment in the clan; its members have duties toward it; it punishes sundry acts even with death, and rewards or extols sundry other acts. We are, in short, in an ethical atmosphere, crude and stifling, doubtless, as compared with that of a modern Christian homestead, but still unquestionably ethical.

IX

Origin of Moral Ideas and Sentiments

NOW, here at last, in encountering the ethical process at work, have we detected a breach of continuity? Has the moral sentiment been flung in from outside, or is it a natural result of the cosmic process we have been sketching? Clearly it is the latter. There has been no breach of continuity. When the prolongation of infancy produced the clan, there naturally arose reciprocal necessities of behaviour among the members of the clan, its mothers and children, its hunters and warriors. If such reciprocal necessities were to be disregarded the clan would dissolve, and dissolution would be general destruction. For, bear in mind, the clan, when once evolved, becomes the unit whose preservation is henceforth the permanent

necessity. It is infancy that has made it so. A miscellaneous horde, with brief infancies for its younger members, may survive a very extensive slaughter; but in a clan, where the proportion of helpless children is much greater, and a considerable division of labour between nurses and warriors has become established, the case is different. An amount or degree of calamity sufficient to break up its organization will usually mean total ruin. Hence, when Nature's travail has at length brought forth the clan, its requirements forthwith become paramount, and each member's conduct from babyhood must conform to them. Natural selection henceforth invests her chief capital in the enterprise of preserving the clan. In that primitive social unit lie all the potentiality and promise of Human Society through untold future ages. So for age after age those clans in which the conduct of the individuals is best subordinated to the general welfare are sure to prevail over clans in which the subordina-

tion is less perfect. As the maternal instinct had been cultivated for thousands of generations before clanship came into existence, so for many succeeding ages of turbulence the patriotic instinct, which prompts to the defence of home, was cultivated under penalty of death. Clans defended by weakly loyal or cowardly warriors were sure to perish. Unflinching bravery and devoted patriotism were virtues necessary to the survival of the community, and were thus preserved until at the dawn of historic times, in the most grandly militant of clan societies, we find the word *virtus* connoting just these qualities, and no sooner does the fateful gulf yawn open in the forum than a Curtius joyfully leaps into it, that the commonwealth may be preserved from harm.

Now the moment a man's voluntary actions are determined by conscious or unconscious reference to a standard outside of himself and his selfish motives, he has entered the world of ethics, he has begun

to live in a moral atmosphere. Egoism has ceased to be all in all, and altruism — it is an ugly-sounding word, but seems to be the only one available — altruism has begun to assert its claim to sovereignty. In the earlier and purely animal stages of existence it was right enough for each individual to pursue pleasure and avoid pain ; it did not endanger the welfare of the species, but on the contrary it favoured that welfare ; in its origin avoidance of pain was the surest safeguard for the perpetuation of life, and with due qualifications that is still the case. But as soon as sociality became established, and Nature's supreme end became the maintenance of the clan organization, the standard for the individual's conduct became shifted, permanently and forever shifted. Limits were interposed at which pleasure must be resigned and pain endured, even certain death encountered, for the sake of the clan ; perhaps the individual did not always understand it in that way, but at all events it was for the sake

of some rule recognized in the clan, some rule which, as his mother and all his kin had from his earliest childhood inculcated upon him, *ought* to be obeyed. This conception of ought, of obligation, of duty, of debt to something outside of self, resulted from the shifting of the standard of conduct outside of the individual's self. Once thus externalized, objectivized, the ethical standard demanded homage from the individual. It furnished the rule for a higher life than one dictated by mere selfishness. Speaking after the manner of naturalists, I here use the phrase "higher life" advisedly. It was the kind of life that was conducive to the preservation and further development of the highest form of animate existence that had been attained. It appears to me that we begin to find for ethics the most tremendous kind of sanction in the nature of the cosmic process.

A word of caution may be needed. It is not for a moment to be supposed that when primitive men began crudely shaping their

conduct with reference to a standard outside of self, they did so as the result of meditation, or with any realizing sense of what they were doing. That has never been the method of evolution. Its results steal upon the world noiselessly and unobserved, and only after they have long been with us does reason employ itself upon them. The wolf does not eat the lamb because he regards a flesh diet as necessary to his health and activity, but because he is hungry, and, like Mr. Harold Skimpole, he likes lamb. It was no intellectual perception of needs and consequences that lengthened the maternal instinct with primeval mothers as the period of infancy lengthened. Nor was it any such intellectual perception that began to enthrone "I ought" in the place of "I wish." If in the world's recurrent crises Nature had waited to be served by the flickering lamp of reason, the story would not have been what it is. Her method has been, with the advent of a new situation, to modify the

existing group of instincts; and this work she will not let be slighted; in her train follows the lictor with the symbols of death, and there is neither pity nor relenting. In the primeval warfare between clans, those in which the instincts were not so modified as to shift the standard of conduct outside of the individual's self must inevitably have succumbed and perished under the pressure of those in which the instincts had begun to experience such modification. The moral law grew up in the world not because anybody asked for it, but because it was needed for the world's work. If it is not a product of the cosmic process, it would be hard to find anything that could be so called.

X

The Cosmic Process exists purely for the Sake of Moral Ends

I HAVE not undertaken to make my outline sketch of the genesis of Humanity approach to completeness, but only to present enough salient points to make a closely connected argument in showing how morality is evolved in the cosmic process and sanctioned by it. In a more complete sketch it would be necessary to say something about the genesis of Religion. One of the most interesting, and in my opinion one of the most profoundly significant, facts in the whole process of evolution is the first appearance of religious sentiment at very nearly the same stage at which the moral law began to grow up. To the differential attributes of Humanity already considered there needs

to be added the possession of religious sentiment and religious ideas. We may safely say that this is the most important of all the distinctions between Man and other animals; for to say so is simply to epitomize the whole of human experience as recorded in history, art, and literature. Along with the rise from gregariousness to incipient sociality, along with the first stammerings of articulate speech, along with the dawning discrimination between right and wrong, came the earliest feeble groping toward a world beyond that which greets the senses, the first dim recognition of the Spiritual Power that is revealed in and through the visible and palpable realm of nature. And universally since that time the notion of Ethics has been inseparably associated with the notion of Religion, and the sanction for Ethics has been held to be closely related with the world beyond phenomena. There are philosophers who maintain that with the further progress of enlightenment this close relation will cease

to be asserted, that Ethics will be divorced from Religion, and that the groping of the Human Soul after its God will be condemned as a mere survival from the errors of primitive savagery, a vain and idle reaching out toward a world of mere phantoms. I mention this opinion merely to express unqualified and total dissent from it. I believe it can be shown that one of the strongest implications of the doctrine of evolution is the Everlasting Reality of Religion.

But we have not time at present for entering upon so vast a subject. Let this reference suffice to show that it has not been passed over or forgotten in my theory of the genesis of Humanity. In an account of the evolution of the religious sentiment, its first appearance as coeval, or nearly so, with the beginnings of the ethical process would assume great importance. We have here been concerned purely with the ethical process itself, which we have found to be — as Huxley truly says in his footnote — part and parcel of the general process

of evolution. Our historical survey of the genesis of Humanity seems to show very forcibly that a society of Human Souls living in conformity to a perfect Moral Law is the end toward which, ever since the time when our solar system was a patch of nebulous vapour, the cosmic process has been aiming. After our cooling planet had become the seat of organic life, the process of natural selection went on for long ages seemingly, but not really at random; for our retrospect shows that its ultimate tendency was towards singling out one creature and exalting his intelligence.

Now we have seen that this increase of intelligence itself, by entailing upon Man the helplessness of infancy, led directly to the production of those social conditions that called the ethical process into play and set it actively to work. Thus we may see the absurdity of trying to separate the moral nature of Man from the rest of his nature, and to assign for it a separate and independent history. The essential solidarity

in the cosmic process will admit of no such fanciful detachment of one part from another. All parts are involved one in another. Again, the ethical process is not only part and parcel of the cosmic process, but it is its crown and consummation. Toward the spiritual perfection of Humanity the stupendous momentum of the cosmic process has all along been tending. That spiritual perfection is the true goal of evolution, the divine end that was involved in the beginning. When Huxley asks us to believe that "the cosmic process has no sort of relation to moral ends," I feel like replying with the question, "Does not the cosmic process exist purely for the sake of moral ends?" Subtract from the universe its ethical meaning, and nothing remains but an unreal phantom, the figment of false metaphysics.

We have now arrived at a position from which a glimmer of light is thrown upon some of the dark problems connected with the moral government of the world. We

can begin to see why misery and wrong-doing are permitted to exist, and why the creative energy advances by such slow and tortuous methods toward the fulfilment of its divine purpose. In order to understand these things, we must ask, What is the ultimate goal of the ethical process? According to the utilitarian philosophy that goal is the completion of human happiness. But this interpretation soon refutes itself. A world of completed happiness might well be a world of quiescence, of stagnation, of automatism, of blankness; the dynamics of evolution would have no place in it. But suppose we say that the ultimate goal of the ethical process is the perfecting of human character? This form of statement contains far more than the other. Consummation of happiness is a natural outcome of the perfecting of character, but that perfecting can be achieved only through struggle, through discipline, through resistance. It is for him that *overcometh* that the crown of life is reserved. The con-

summate product of a world of evolution is the character that *creates* happiness, that is replete with dynamic possibilities of fresh life and activity in directions forever new. Such a character is the reflected image of God, and in it are contained the promise and potency of life everlasting.

No such character could be produced by any act of special creation in a garden of Eden. It must be the consummate efflorescence of long ages of evolution, and a world of evolution is necessarily characterized by slow processes, many of which to a looker-on seem like tentative experiments, with an enormous sacrifice of ephemeral forms of life. Thus while the Earth Spirit goes on, unhasting, yet unresting, weaving in the loom of Time the visible garment of God, we begin to see that even what look like failures and blemishes have been from the outset involved in the accomplishment of the all-wise and all-holy purpose, the perfecting of the spiritual Man in the likeness of his Heavenly Father.

These points will receive further indirect illustration as we complete our outline sketch of the cosmic process in the past. It is self-evident that in the production of an ethical character, altruistic feelings and impulses must coöperate. Let us look, then, for some of the beginnings of altruism in the course of the evolution of life.

XI

Maternity and the Evolution of Altruism

FROM an early period of the life-history of our planet, the preservation of the species had obviously become quite as imperative an end as the preservation of individuals; one is at first inclined to say more imperative, but if we pause long enough to remember that total failure to preserve individuals would be equivalent to immediate extinction of the species, we see that the one requirement is as indispensable as the other. Individuals must be preserved, and the struggle for life is between them; species must be preserved, and in the rivalry those have the best chance in which the offspring are either most redundant in numbers or are best cared for. In plants and animals of all but the higher types, the offspring are spores

or seeds, larvæ or spawn, or self-maturing eggs. In the absence of parental care the persistence of the species is ensured by the enormous number of such offspring. A single codfish, in a single season, will lay six million eggs, nearly all of which perish, of course, or else in a few years the ocean could not hold all the codfishes. But the princess in the Arabian tale, who fought with the malignant Jinni, could not for her life pick up all the scattered seeds of the pomegranate; and in like manner of the codfish eggs, one in a million or so escapes and the species is maintained. But in the highest types of animal life in birds and mammals — with their four-chambered hearts, completely arterialized blood, and enhanced consciousness — parental care becomes effective in protecting the offspring, and the excessive production diminishes. With birds, the necessity of maintaining a high temperature for the eggs leads to the building of nests, to a division of labour in the securing of food, to the development of

a temporary maternal instinct, and to conjugal alliances which in some birds last for a lifetime. As the eggs become effectively guarded the number diminishes, till instead of millions there are half a dozen. When it comes to her more valuable products, Nature is not such a reckless squanderer after all. So with mammals, for the most part the young are in litters of half a dozen or so; but in Man, with his prolonged and costly infancy parental care reaches its highest development and concentration in rearing children one by one.

From the dawn of life, I need hardly say, all the instincts that have contributed to the preservation of offspring must have been favoured and cultivated by natural selection, and in many cases even in types of life very remote from Humanity, such instincts have prompted to very different actions from such as would flow from the mere instinct of self-preservation. If you thrust your walking-stick into an ant-heap, and watch the wild hurry and confusion that

ensues when part of the interior is laid bare, you will see that all the workers are busy in moving the larvæ into places of safety. It is not exactly a maternal instinct, for the workers are not mothers, but it is an altruistic instinct involving acts of self-devotion. So in the case of fish that ascend rivers or bays at spawning time, the actions of the whole shoal are determined by a temporarily predominant instinct that tends towards an altruistic result. In these and lower grades of life there is already something at work besides the mere struggle for life between individuals; there is something more than mere contention and slaughter; there is the effort towards cherishing another life than one's own. In these regions of animate existence we catch glimpses of the cosmic roots of love and self-sacrifice. For the simplest and rudest productions of Nature mere egoism might suffice, but to the achievement of any higher aim some adumbration of altruism was indispensable.

Before such divine things as love and self-sacrifice could spring up from their cosmic roots and put forth their efflorescence, it was necessary that conscious personal relations should become established between mother and infant. We have already observed the critical importance of these relations in the earliest stages of the evolution of human society. We may now add that the relation between mother and child must have furnished the first occasion for the sustained and regular development of the altruistic feelings. The capacity for unselfish devotion called forth in that relation could afterward be utilized in the conduct of individuals not thus related to one another.

Of all kinds of altruism the mother's was no doubt the earliest; it was the derivative source from which all other kinds were by slow degrees developed. In the evolution of these altruistic feelings, therefore, — feelings which are an absolutely indispensable constituent in the process of ethical

development, — the first appearance of real maternity was an epoch of most profound interest and importance in the history of life upon the earth.

Now maternity, in the true and full sense of the word, is something which was not realized until a comparatively recent stage of the earth's history. God's highest work is never perfected save in the fulness of time. For countless ages there were parents and offspring before the slow but never aimless or wanton cosmic process had brought into existence the conscious personal relationship between mother and child. Protection of eggs and larvæ scarcely suffices for the evolution of true maternity; the relation of moth to caterpillar is certainly very far from being a prototype of it. What spectacle could be more dreary than that of the Jurassic period, with its lords of creation, the oviparous dinosaurs, crawling or bounding over the land, splashing amid the mighty waters, whizzing bat-like through the air, horrible brutes innumerable, with

bulky bodies and tiny brains, clumsy, coarse in fibre, and cold-blooded.

> "Dragons of the prime,
> That tare each other in their slime."

The remnants of that far-off dismal age have been left behind in great abundance, and from them we can easily reconstruct the loathsome picture of a world of dominating egoism, whose redemption through the evolution of true maternity had not yet effectively begun. For such a world might Caliban's theology indeed seem fitted. Nearly nine tenths of our planet's past life-history, measured in duration, had passed away without achieving any higher result than this, — a fact which for impatient reformers may have in it some crumbs of consolation.

For, though the mills of God grind slowly, the cosmic process was aiming at something better than egoism and dinosaurs, and at some time during the long period of the Chalk deposits there began the tremendous world-wide rivalry between these dragons

and the rising class of warm-blooded viviparous mammals which had hitherto played an insignificant part in the world. The very name of this class of animals is taken from the function of motherhood. The offspring of these "mammas" come into the world as recognizable personalities, so far developed that the relation between mother and child begins as a relation of personal affection. The new-born mammal is not an egg nor a caterpillar, but a baby, and the baby's dawning consciousness opens up a narrow horizon of sympathy and tenderness, a horizon of which the expansion shall in due course of ages reveal a new heaven and a new earth. At first the nascent altruism was crude enough, but it must have sufficed to make mutual understanding and coöperation more possible than before; it thus contributed to the advancement of mammalian intelligence, and prepared the way for gregariousness, by and by to culminate in sociality, as already described. In the history of creation the mammals

were moderns, equipped with more effective means of ensuring survival than their oviparous antagonists. The development of complete mammality was no sudden thing. Some of the dinosaurs may have been ovoviviparous, like some modern serpents. The Australian duck-bill, a relic of the most ancient incipient mammality, is still oviparous; the opossum and kangaroo preserve the record of a stage when viviparousness was but partially achieved; but with the advent of the placental mammals the break with the old order of things was complete.

The results of the struggle are registered in the Eocene rocks. The ancient world had found its Waterloo. Gone were the dragons who so long had lorded it over both hemispheres, — brontosaurs, iguanodons, plesiosaurs, lælaps, pterodactyls, — all gone; their uncouth brood quite vanished from the earth, and nothing left alive as a reminder, save a few degenerate collateral kin, such as snakes and crocodiles,

objects of dread and loathing to higher creatures. Never in the history of our planet has there been a more sweeping victory than that of the mammals, nor has Nature had any further occasion for victories of that sort. The mammal remains the highest type of animal existence, and subsequent progress has been shown in the perfecting of that type where most perfectible.

XII

The Omnipresent Ethical Trend

WITH the evolution of true maternity Nature was ready to proceed to her highest grades of work. Intelligence was next to be lifted to higher levels, and the order of mammals with greatest prehensile capacities, the primates with their incipient hands, were the most favourable subjects in which to carry on this process. The later stages of the marvellous story we have already passed in review. We have seen the accumulating intelligence lengthen the period of infancy, and thus prolong the relations of loving sympathy between mother and child; we have seen the human family and human society thus brought into existence; and along therewith we have recognized the necessity laid upon each individual for conforming his conduct

to a standard external to himself. At this point, without encountering any breach of continuity in the cosmic process, we crossed the threshold of the ethical world, and entered a region where civilization, or the gradual perfecting of the spiritual qualities, is henceforth Nature's paramount aim. To penetrate further into this region would be to follow the progress of civilization, while the primitive canoe develops into the Cunard steamship, the hieroglyphic battle-sketch into epics and dramas, sun-catcher myths into the Newtonian astronomy, wandering tribes into mighty nations, the ethics of the clan into the moral law for all men. The story shows us Man becoming more and more clearly the image of God, exercising creative attributes, transforming his physical environment, incarnating his thoughts in visible and tangible shapes all over the world, and extorting from the abysses of space the secrets of vanished ages. From lowly beginnings, without breach of continuity, and through the cumulative action of

minute and inconspicuous causes, the resistless momentum of cosmic events has tended toward such kind of consummation; and part and parcel of the whole process, inseparably wrapped up with every other part, has been the evolution of the sentiments which tend to subordinate mere egoism to unselfish and moral ends.

A narrow or partial survey might fail to make clear the solidarity of the cosmic process. But the history of creation, when broadly and patiently considered, brings home to us with fresh emphasis the profound truth of what Emerson once said, that "the lesson of life . . . is to believe what the years and the centuries say against the hours; to resist the usurpation of particulars; to penetrate to their catholic sense." When we have learned this lesson, our misgivings vanish, and we breathe a clear atmosphere of faith. Though in many ways God's work is above our comprehension, yet those parts of the world's story that we can decipher well warrant the belief that while in

Nature there may be divine irony, there can be no such thing as wanton mockery, for profoundly underlying the surface entanglement of her actions we may discern the omnipresent ethical trend. The moral sentiments, the moral law, devotion to unselfish ends, disinterested love, nobility of soul, — these are Nature's most highly wrought products, latest in coming to maturity; they are the consummation, toward which all earlier prophecy has pointed. We are right, then, in greeting the rejuvenescent summer with devout faith and hope. Below the surface din and clashing of the struggle for life we hear the undertone of the deep ethical purpose, as it rolls in solemn music through the ages, its volume swelled by every victory, great or small, of right over wrong, till in the fulness of time, in God's own time, it shall burst forth in the triumphant chorus of Humanity purified and redeemed.

THE EVERLASTING REALITY OF RELIGION

Here sits he shaping wings to fly;
His heart forebodes a mystery:
He names the name Eternity.

That type of Perfect in his mind
In Nature can he nowhere find,
He sows himself on every wind.

He seems to hear a Heavenly Friend,
And through thick veils to apprehend
A labour working to an end.

TENNYSON, *The Two Voices.*

I

"Deo erexit Voltaire"

THE visitor to Geneva whose studies have made him duly acquainted with the most interesting human personality of all that are associated with that historic city will never leave the place without making a pilgrimage to the chateau of Ferney. In that refined and quiet rural homestead things still remain very much as on the day when the aged Voltaire left it for the last visit to Paris, where his long life was worthily ended amid words and deeds of affectionate homage. One may sit down at the table where was written the most perfect prose, perhaps, that ever flowed from pen, and look about the little room with its evidences of plain living and high thinking, until one seems to recall the eccentric figure of the vanished Master, with his

flashes of shrewd wisdom and caustic wit, his insatiable thirst for knowledge, his consuming hatred of bigotry and oppression, his merciless contempt for shams, his boundless enthusiasm of humanity. As we stroll in the park, that quaint presence goes along with us till all at once in a shady walk we come upon something highly significant and characteristic, the little parish church with its Latin inscription over the portal, *Deo erexit Voltaire*, i. e. "Voltaire built it for God," and as we muse upon it, the piercing eyes and sardonic but not unkindly smile seem still to follow us. What meant this eccentric inscription?

When Voltaire became possessor of the manor of Ferney, the church was badly out of repair, and stood where it obstructed the view from certain windows of the chateau. So he had it cleared away, and built in a better spot the new church that is still there. It was duly consecrated, and the Pope further hallowed it with some relics of ancient saints, and there for many a

year the tenants and dependents of the manor assembled for divine service. Nowhere in France had Voltaire ever seen a church dedicated simply to God; it was always to Our Lady of This or Saint So-and-so of That; always there was some intermediary between the devout soul and the God of its worship. Not thus should it be with Voltaire's church, built upon his own estate to minister to the spiritual needs of his people. It should be dedicated simply and without further qualification to the worship and service of God. Furthermore, it was built and dedicated, not by any ecclesiastical or corporate body, but by the lord of that manor, the individual layman, Voltaire.

This, I say, was highly characteristic and significant. It gave terse and pointed expression to Voltaire's way of looking at such things. Church and theology were ignored, and the individual soul was left alone with its God. The Protestant reformers and other freethinkers had stopped far short of this. In place of an infallible

Church they had left an infallible Book ; if they rejected transubstantiation, they retained as obligatory such doctrines as those of the incarnation and atonement ; if they laughed at the miracles of mediæval saints, they would allow no discredit to be thrown upon those of the apostolic age ; in short, they left standing a large part, if not the larger part, of the supernatural edifice within which the religious mind of Europe had so long been sheltered. But Voltaire regarded that whole supernatural edifice as so much rubbish which was impeding the free development of the human mind, and ought as quickly as possible to be torn to pieces and cleared away. His emotions as well as his reason were concerned in this conclusion. Organized Christianity, as it then existed in France, was responsible for much atrocious injustice, and in neighbouring lands the Inquisition still existed. Ecclesiastical bigotry, the prejudice of ignorance, whatever tended to hold people in darkness and restrain them from the free

and natural use of their faculties, Voltaire hated with all the intensity of which he was capable. He summed it all up in one abstract term and personified it as "The Infamous," and the watchword of that life of tireless vigilance was "Crush the Infamous!" Supernatural theology had been too often pressed into the service of "The Infamous," and for supernatural theology Voltaire could find no place in his scheme of things. He lost no chance of assailing it with mockery and sarcasm made terrible by the earnestness of his purpose, until he came in many quarters to be regarded as the most inveterate antagonist the Church had ever known.

Yet among the great men of letters in France contemporary with Voltaire, the most part went immeasurably farther than he, and went in a different direction withal, for they denied the reality of Religion. Few of them, indeed, believed in the existence of God, or would have had anything to do with building a house of worship.

It is related of David Hume that when dining once in a party of eighteen at the house of Baron d'Holbach, he expressed a doubt as to whether any person could anywhere be found to avow himself dogmatically an atheist. "Indeed, my dear sir," quoth the host, "you are this moment sitting at table with seventeen such persons." Among that group of philosophers were men of great intelligence and lofty purpose, such as D'Alembert, Diderot, Helvétius, Condorcet, Buffon, men with more of the real spirit of Christianity in their natures than could be found in half the churches of Christendom. The roots of their atheism were emotional rather than philosophical. It was part of the generous but rash and superficial impatience with which they disowned all connection whatever with a Church that had become subservient to so much that was bad. Their atheism was one of the fruits of the vicious policy which had suppressed Huguenotism in France; it was an early instance of what has since

been often observed, that materialism and atheism are much more apt to flourish in Romanist than in Protestant countries. The form of religion which is already to some extent purified and rationalized awakens no such violent revulsion in free-thinking minds as the form that is more heavily encumbered with remnants of obsolete primitive thought. Moreover, the rationalizing religion of Protestant countries is commonly found in alliance with political freedom. In France under the Old Régime, the Catholic religion was stigmatized as an ally of despotism, as well as a congeries of absurd doctrines and ceremonies. The best minds felt their common sense shocked by it no less than their reason. No very deep thinking was done on the subject; their treatment of it was in general extremely shallow.

The forms which religious sentiment had assumed in the Middle Ages had become unintelligible; the most highly endowed minds were dead to the sublimity of Gothic

architecture, and saw nothing but grotesque folly in Dante's poetry. They seriously believed that religious doctrines and ecclesiastical government were originally elaborate systems of fraud, devised by sagacious and crafty tyrants for the sole purpose of enslaving the multitude of mankind. No discrimination was shown. They were as ready to throw away belief in God as in the miracles of St. Columba, and to scout at the notion of a future life in the same terms as those in which they denounced the forged donation of Constantine. The flippant ease with which they disposed of the greatest questions, in crass ignorance of the very nature of the problem to be solved, was well illustrated in the remark of the astronomer Lalande, that he had swept the entire heavens with his telescope and found no God there. A similar instance of missing the point was furnished about fifty years ago by the eminent physiologist Moleschott, when he exclaimed, "No thought without phosphorus," and congratulated himself that

he had forever disposed of the human soul. I am inclined to think that those are the two remarks most colossal in their silliness that ever appeared in print.

Very different in spirit was the acute reply of Laplace when reminded by Napoleon that his great treatise on the dynamics of the solar system contained no allusion to God. "Sire," said Laplace, "I had no need of that hypothesis." This remark was profound in its truth, for it meant that in order to give a specific explanation of any single group of phenomena, it will not do to appeal to divine action, which is equally the source of all phenomena. Science can deal only with secondary causes. In the eighteenth century men of science were learning that such is the case; men like Diderot and D'Alembert had come to realize it, and they believed that the logical result was atheism. This was because the only idea of God which they had ever been taught to entertain was the Latin idea of a God remote from the

world and manifested only through occasional interferences with the order of nature. When they dismissed this idea they declared themselves atheists. If they had been familiar with the Greek idea of God as immanent in the world and manifested at every moment through the orderly sequence of its phenomena, their conclusions would doubtless have been very different.

To these philosophers Voltaire's unshaken theism seemed a mere bit of eccentric conservatism. But along with that queer and intensely independent personality there went a stronger intellectual grasp and a more calm intellectual vision than belonged to any other Frenchman of the eighteenth century. In the facts of Nature, despite the lifeless piecemeal fashion in which they were then studied, Voltaire saw a rational principle at work which atheism could in nowise account for. To him the universe seemed full of evidences of beneficent purpose, and more than once he set forth with eloquence and power the

famous argument from design, which is as old as Xenophon's Memorabilia, and which received its fullest development at the hands of Paley and the authors of the Bridgewater Treatises. There is thus yet another significance added to the little church at Ferney. Not only was it the sole church in France dedicated simply to God, and not only was its builder a layman hostile to ecclesiastical doctrines and methods, but he was almost alone among the eminent freethinkers of his age and country in believing in God and asserting the everlasting reality of religion.

It is therefore that I have cited Voltaire as a kind of text for the present discourse; for it is my purpose to show that, apart from all questions of revelation, the light of nature affords us sufficient ground for maintaining that religion is fundamentally true and must endure forever. It appears to me, moreover, that the materialism of the present day is merely a tradition handed down from the French writers whom Vol-

taire combated. When Moleschott made his silly remark about phosphorus, it was simply an inheritance of silliness from Lalande. When Haeckel tells us that the doctrine of evolution forbids us to believe in a future life, it is not because he has rationally deduced such a conclusion from the doctrine, but because he takes his opinions on such matters ready-made from Ludwig Büchner, who is simply an echo of the eighteenth century atheist La Mettrie. We shall see that the doctrine of evolution has implications very different from what Haeckel supposes.

But first let me observe in passing that in the English-speaking world there has never been any such divorce between rationalism and religion as in France, and among the glories of English literature are such deeply reverent and profoundly philosophical writings as those of Hooker and Chillingworth, of Bishop Butler and Jonathan Edwards, and in our own time of Dr. Martineau. Nowhere in history, perhaps,

have faith and reason been more harmoniously wedded together than in the history of English Protestantism. But the disturbance that affected France in the age of Voltaire now affects the whole Christian world, and every question connected with religion has been probed to depths of which the existence was scarcely suspected a century ago. One seldom, indeed, hears the frivolous mockery in which the old French writers dealt so freely; that was an ebullition of temper called forth by a tyranny that had come to be a social nuisance. The scepticism of our day is rather sad than frivolous; it drags people from long cherished notions in spite of themselves; it spares but few that are active-minded; it invades the church, and does not stop in the pews to listen but ascends the pulpit and preaches. There is no refuge anywhere from this doubting and testing spirit of the age. In the attitude of civilized men towards the world in which we live, the change of front has been stupendous; the

old cosmology has been overthrown in headlong ruin, attacks upon doctrines have multiplied, and rituals, creeds, and Scriptures are overhauled and criticised, until a young generation grows up knowing nothing of the sturdy faith of its grandfathers save by hearsay; for it sees everything in heaven and earth called upon to show its credentials.

II

The Reign of Law, and the Greek Idea of God

THE general effect of this intellectual movement has been to discredit more than ever before the Latin idea of God as a power outside of the course of nature and occasionally interfering with it. In all directions the process of evolution has been discovered, working after similar methods, and this has forced upon us the belief in the Unity of Nature. We are thus driven to the Greek conception of God as the power working in and through nature, without interference or infraction of law. The element of chance, which some atheists formerly admitted into their scheme of things, is expelled. Nobody would now waste his time in theorizing about a fortuitous concourse of atoms. We have so far spelled out the history of creation as to

see that all has been done in strict accordance with law. The method has been the method of evolution, and the more we study it the more do we discern in it intelligible coherence. One part of the story never gives the lie to another part.

So beautiful is all this orderly coherence, so satisfying to some of our intellectual needs, that many minds are inclined to doubt if anything more can be said of the universe than that it is a Reign of Law, an endless aggregate of coexistences and sequences. When we say that one star attracts another star, we do not really know that there is any pulling in the case ; all we know is that a piece of cosmical matter in the presence of another piece of matter alters its space-relations in a certain specified way. Among the coexistences and sequences there is an order which we can detect, and a few thinkers are inclined to maintain that this is the whole story. Such a state of mind, which rests satisfied with the mere content of observed facts, without

seeking to trace their ultimate implications, is the characteristic of what Auguste Comte called Positivism. It is a more refined phase of atheism than that of the guests at Baron d'Holbach's, but its adherents are few; for the impetus of modern scientific thought tends with overwhelming force towards the conception of a single First Cause, or Prime Mover, perpetually manifested from moment to moment in all the Protean changes that make up the universe. As I have elsewhere sought to show, this is practically identical with the Athanasian conception of the immanent Deity.[1] Modern men of science often call this view of things Monism, but if questioned narrowly concerning the immanent First Cause, they reply with a general disclaimer of knowledge, and thus entitle themselves to be called by Huxley's term "Agnostics." Thirty-five years ago Spencer, taking a hint from Sir William Hamilton, used the phrase

1 *The Idea of God as affected by Modern Knowledge*, Boston, 1885.

"The Unknowable" as an equivalent for the immanent Deity considered *per se;* but I always avoid that phrase, for in practice it invariably leads to wrong conceptions, and naturally, since it only expresses one side of the truth. If on the one hand it is impossible for the finite Mind to fathom the Infinite, on the other hand it is practically misleading to apply the term Unknowable to the Deity that is revealed in every pulsation of the wondrously rich and beautiful life of the Universe. For most persons no amount of explanation will prevent the use of the word Unknowable from seeming to remove Deity to an unapproachable distance, whereas the Deity revealed in the process of evolution is the ever-present God without whom not a sparrow falls to the ground, and whose voice is heard in each whisper of conscience, even while his splendour dwells in the white ray from yonder star that began its earthward flight while Abraham's shepherds watched their flocks. It is clear that many persons have

derived from Spencer's use of the word Unknowable an impression that he intends by means of metaphysics to refine God away into nothing; whereas he no more cherishes any such intention than did St. Paul, when he asked, "Who hath known the mind of the Lord, or who hath been his counsellor?" — no more than Isaiah did when he declared that even as the heavens are higher than the earth, so are Jehovah's ways higher than our ways and his thoughts than our thoughts.

III

Weakness of Materialism

JUST here comes along the materialist and asks us some questions, tries to serve on us a kind of metaphysical writ of *quo warranto.* If modern physics leads us inevitably to the conception of a single infinite Power manifested in all the phenomena of the knowable Universe, by what authority do we identify that Power with the indwelling Deity as conceived by St. Athanasius? The Athanasian Deity is to some extent fashioned in Man's image; he is, to say the least, like the psychical part of ourselves. After making all possible allowances for the gulf which separates that which is Infinite and Absolute from that which is Finite and Relative, an essential kinship is asserted between God and the Human Soul. By what au-

thority, our materialist will ask, do we assert any such kinship between the Human Soul and the Power which modern physics reveals as active throughout the universe? Is it not going far beyond our knowledge to assert any such kinship? And would it not be more modest and becoming in us to simply designate this ever active universal Power by some purely scientific term, such as Force?

This argument is to-day a very familiar one, and it wears a plausible aspect; it is couched in a spirit of scientific reserve, which wins for it respectful consideration. The modest and cautious spirit of science has done so much for us, that it is always wise to give due heed to its warnings. Let us beware of going beyond our knowledge, says the materialist. We know nothing but phenomena as manifestations of an indwelling force; nor have we any ground for supposing that there is anything psychical, or even quasi-psychical, in the universe outside of the individual minds of men and

other animals. Moreover, continues the materialist, the psychical phenomena of which we are conscious — reason, memory, emotion, volition — are but peculiarly conditioned manifestations of the same indwelling force which under other conditions appears as light or heat or electricity. All such manifestations are fleeting, and beyond this world of fleeting phenomena we have no warrant, either in science or in common sense, for supposing that anything whatever exists. This world that is cognizable through the senses is all that there is, and the story of it that we can decipher by the aid of terrestrial experience is the whole story; the Unseen World is a mere figment inherited from the untutored fancy of primeval man. Such is the general view of things which Materialism urges upon us with the plea of scientific sobriety and caution; and to many minds, as already observed, it wears a plausible aspect.

Nevertheless, when subjected to criticism, this theory of things soon loses its

sober and plausible appearance and is seen to be eminently rash and shallow. In the first place, there is no such correlation or equivalence as is alleged between physical forces and the phenomena of consciousness. The correlations between different modes of motion have been proved by actual quantitative measurement, and never could have been proved in any other way. We know, for example, that heat is a mode of motion; the heat that will raise the temperature of a pound of water by one degree of Fahrenheit is exactly equivalent to the motion of 772 pounds falling through a distance of one foot. In similar wise we know that light, electricity, and magnetism are modes of motion, transferable one into another; and, although precise measurements have not been accomplished, there is no reason for doubting that the changes in brain tissue, which accompany each thought and feeling, are also modes of motion, transferable into the other physical modes. But thought and feeling themselves, which can

neither be weighed nor measured, do not admit of being resolved into modes of motion. They do not enter into the closed circuit of physical transformations, but stand forever outside of it, and concentric with that segment of the circuit which passes through the brain. It may be that thought and feeling could not continue to exist if that physical segment of the circuit were taken away. It may be that they could. To assume that they could not is surely the height of rash presumption. The correlation of forces exhibits Mind as in nowise a product of Matter, but as something in its growth and manifestations outside and parallel. It is incompatible with the theory that the relation of the human soul to the body is like that of music to the harp; but it is quite compatible with the time-honoured theory of the human soul as indwelling in the body and escaping from it at death.

In the second place, when we come to the denial of all kinship between the hu-

man soul and the Infinite Power that is revealed in all phenomena, the materialistic theory raises difficulties as great as those which it seeks to avoid. The difficulties which it wishes to avoid are those which inevitably encumber the attempt to conceive of Deity as Personality exerting volition and cherishing intelligent purpose. Such difficulties are undeniably great; nay, they are insuperable. When we speak of Intelligence and Will and Personality, we must use these words with the meanings in which experience has clothed them, or we shall soon find ourselves talking nonsense. The only intelligence we know is strictly serial in its nature, and is limited by the existence of independent objects of cognition. What flight of analogy can bear us across the gulf that divides such finite intelligence from that unlimited Knowledge to which all things past and future are ever present? Volition, as we know it, implies alternative courses of action, antecedent motives, and resulting effort. Like intelligence, its op-

erations are serial. What, then, do we really mean, if we speak of omnipresent Volition achieving at one and the same moment an infinite variety of ends? So, too, with Personality: when we speak of personality that is not circumscribed by limits, are we not using language from which all the meaning has evaporated?

Such difficulties are insurmountable. Words which have gained their meanings from finite experience of finite objects of thought must inevitably falter and fail when we seek to apply them to that which is Infinite. But we do not mend matters by employing terms taken from the inorganic world rather than from human personality. To designate the universal Power by some scientific term, such as Force, does not help us in the least. All our experience of force is an experience of finite forces antagonized by other forces. We can frame no conception whatever of Infinite Force comprising within itself all the myriad antagonistic attractions and repul-

sions in which the dynamic universe consists. We go beyond our knowledge when we speak of Infinite Force quite as much as we do when we speak of Infinite Personality. Indeed, no word or phrase which we seek to apply to Deity can be other than an extremely inadequate and unsatisfactory symbol. From the very nature of the case it must always be so, and if we once understand the reason why, it need not vex or puzzle us.

It is not only when we try to speculate about Deity that we find ourselves encompassed with difficulties and are made to realize how very short is our mental tether in some directions. This world, in its commonest aspects, presents many baffling problems, of which it is sometimes wholesome that we should be reminded. If you look at a piece of iron, it seems solid; it looks as if its particles must be everywhere in contact with one another. And yet, by hammering, or by great pressure, or by intense cold, the piece of iron may be com-

pressed, so that it will occupy less space than before. Evidently, then, its particles are not in contact, but are separated from one another by unoccupied tracts of enveloping space. In point of fact, these particles are atoms arranged after a complicated fashion in clusters known as molecules. The word *atom* means something that cannot be cut. Now, are these iron atoms divisible or indivisible? If they are divisible, then what of the parts into which each one can be divided; are they also divisible? and so on forever. But if these iron atoms are indivisible, how can we conceive such a thing? Can we imagine two sides so close together that no plane of cleavage could pass between them? Can we imagine cohesive tenacity too great to be overcome by any assignable disruptive force, and therefore infinite? Suppose, now, we heat this piece of iron to a white heat. Scientific inquiry has revealed the fact that its atom-clusters are floating in an ocean of ether, in which are also floating the atom-

clusters of other bodies and of the air about us. The heating is the increase of wave motion in this ether, until presently a secondary series of intensely rapid waves appear as white light. Now this ether would seem to be of infinite rarity, since it does not affect the weight of bodies, and yet its wave-motions imply an elasticity far greater than that of coiled steel. How can we imagine such powerful resilience combined with such extreme tenuity?

These are a few of the difficulties of conception in which the study of physical science abounds, and I cite them because it is wholesome for us to bear in mind that such difficulties are not confined to theological subjects. They serve to show how our powers of conceiving ideas are strictly limited by the nature of our experience. The illustration just cited from the luminiferous ether simply shows how during the past century the study of radiant forces has introduced us to a mode of material existence quite different from anything that had

formerly been known or suspected. In this mode of matter we find attributes united which all previous experience had taught us to regard as contradictory and incompatible. Yet the facts cannot be denied; hard as we may find it to frame the conception, this light-bearing substance is at the same time almost infinitely rare and almost infinitely resilient. If such difficulties confront us upon the occasion of a fresh extension of our knowledge of the physical world, what must we expect when we come to speculate upon the nature and modes of existence of God? Bearing this in mind, let us proceed to consider the assumption that the Infinite Power which is manifested in the universe is essentially psychical in its nature; in other words, that between God and the Human Soul there is real kinship, although we may be unable to render any scientific account of it. Let us consider this assumption historically, and in the light of our general knowledge of Evolution.

IV

Religion's First Postulate: the Quasi-Human God

IT is with purpose that I use the word *assumption.* As a matter of history, the existence of a quasi-human God has always been an assumption or postulate. It is something which men have all along taken for granted. It probably never occurred to anybody to try to prove the existence of such a God until it was doubted, and doubts on that subject are very modern. Omitting from the account a few score of ingenious philosophers, it may be said that all mankind, the wisest and the simplest, have taken for granted the existence of a Deity, or deities, of a psychical nature more or less similar to that of Humanity. Such a postulate has formed a part of all human thinking from

primitive ages down to the present time. The forms in which it has appeared have been myriad in number, but all have been included in this same fundamental assumption. The earliest forms were those which we call fetishism and animism. In fetishism the wind that blows a tree down is endowed with personality and supposed to exert conscious effort; in animism some ghost of a dead man is animating that gust of wind. In either case a conscious volition similar to our own, but outside of us, is supposed to be at work. There has been some discussion as to whether fetishism or animism is the more primitive, and some writers would regard fetishism as a special case of animism; but it is not necessary to my present purpose that such questions should be settled. The main point is this, that in the earliest phases of theism each operation of Nature was supposed to have some quasi-human personality behind it. Such phases we find among contemporary savages, and there is abundant evidence of

their former existence among peoples now civilized. In the course of ages there was a good deal of generalizing done. Poseidon could shake the land and preside over the sea, angry Apollo could shoot arrows tipped with pestilence, mischievous Hermes could play pranks in the summer breezes, while as lord over all, though with somewhat fitful sway, stood Zeus on the summit of Olympus, gathering the rain-clouds and wielding the thunderbolt. Nothing but increasing knowledge of nature was needed to convert such Polytheism into Monotheism, even into the strict Monotheism of our own time, in which the whole universe is the multiform manifestation of a single Deity that is still regarded as in some real and true sense quasi-human. As the notion of Deity has thus been gradually generalized, from a thousand local gods to one omnipresent God, it has been gradually stripped of its grosser anthropomorphic vestments. The tutelar Deity of a savage clan is supposed to share with his devout worshippers in the

cannibal banquet; the Gods of Olympus made war and love, and were moved to fits of inextinguishable laughter. From our modern Monotheism such accidents of humanity are eliminated, but the notion of a kinship between God and man remains, and is rightly felt to be essential to theism. Take away from our notion of God the human element, and the theism instantly vanishes; it ceases to be a notion of God. We may retain an abstract symbol to which we apply some such epithet as Force, or Energy, or Power, but there is nothing theistic in this. Some ingenious philosopher may try to persuade us to the contrary, but the Human Soul knows better; it knows at least what it wants; it has asked for Theology, not for Dynamics, and it resents all such attempts to palm off upon it stones for bread.

Our philosopher will here perhaps lift up his hands in dismay and cry, "Hold! what matters it what the Human Soul wants? Are cravings, forsooth, to be made to do

duty as reasons?" It is proper to reply that we are trying to deal with this whole subject after the manner of the naturalist, which is to describe things as they exist and account for them as best we may. I say, then, that mankind have framed, and for long ages maintained, a notion of God into which there enters a human element. Now if it should ever be possible to abolish that human element, it would not be possible to cheat mankind into accepting the non-human remnant of the notion as an equivalent of the full notion of which they had been deprived. Take away from our symbolic conception of God the human element, and that aspect of theism which has from the outset chiefly interested mankind is gone.

V

Religion's Second Postulate: the undying Human Soul

THAT supremely interesting aspect of theism belongs to it as part and parcel of the general belief in an Unseen World, in which human beings have an interest. The belief in the personal continuance of the individual human soul after death is a very ancient one. The savage custom of burying utensils and trinkets for the use of the deceased enables us to trace it back into the Glacial Period. We may safely say that for much more than a hundred thousand years mankind have regarded themselves as personally interested in two worlds, the physical world which daily greets our waking senses, and another world, comparatively dim and vaguely outlined, with which the psychical

side of humanity is more closely connected. The belief in the Unseen World seems to be coextensive with theism; the animism of the lowest savages includes both. No race or tribe of men has ever been found destitute of the belief in a ghost-world. Now, a ghost-world implies the personal continuance of human beings after death, and it also implies identity of nature between the ghosts of man and the indwelling spirits of sun, wind, and flood. It is chiefly because these ideas are so closely interwoven in savage thought that it is often so difficult to discriminate between fetishism and animism. These savage ideas are of course extremely crude in their symbolism. With the gradual civilization of human thinking, the refinement in the conception of the Deity is paralleled by the refinement in the conception of the Other World. From Valhalla to Dante's Paradise, what an immeasurable distance the human mind has travelled! In our modern Monotheism the assumption of kinship be-

tween God and the Human Soul is the assumption that there is in Man a psychical element identical in nature with that which is eternal. Belief in a quasi-human God and belief in the Soul's immortality thus appear in their origin and development, as in their ultimate significance, to be inseparably connected. They are part and parcel of one and the same efflorescence of the human mind. Mankind has always entertained them in common, and so entertains them now; and were it possible (which it is not) for science to disprove the Soul's immortality, a theism deprived of this element would surely never be accepted as an equivalent for the theism entertained before. The Positivist argument that the only worthy immortality is survival in the grateful remembrance of one's fellow creatures would hardly be regarded as anything but a travesty and trick. If the world's long cherished beliefs are to fall, in God's name let them fall, but save us from the intellectual hypocrisy that goes about pretending we are none the poorer!

VI

Religion's Third Postulate: the Ethical Significance of the Unseen World

OUR account of the rise and progress of the general belief in an Unseen World is, however, not yet complete. No mention has been made of an element which apparently has always been present in the belief. I mean the ethical element. The savage's primeval ghost-world is always mixed up with his childlike notions of what he ought to do and what he ought not to do. The native of Tierra del Fuego, who foreboded a snowstorm because one of Mr. Darwin's party killed some birds for specimens, furnishes an excellent illustration. In a tribe living always on the brink of starvation, any wanton sacrifice of meat must awaken the wrath of the tutelar ancestral ghost-deities

who control the weather. Notions of a similar sort are connected with the direful host of omens that dog the savage's footsteps through the world. Whatever conduct the necessities of clan or tribe have prohibited soon comes to wear the aspect of sacrilege.

Thus inextricably intertwined from the moment of their first dim dawning upon the consciousness of nascent Humanity, have been the notion of Deity, the notion of an Unseen World, and the notions of Right and Wrong. In their beginnings theology and ethics were inseparable; in all the vast historic development of religion they have remained inseparable. The grotesque conceptions of primitive men have given place to conceptions framed after wider and deeper experience, but the union of ethics with theology remains undisturbed even in that most refined religious philosophy which ventures no opinion concerning the happiness or misery of a future life, except that the seed sown here will naturally determine the fruit to be gathered hereafter.

All the analogies that modern knowledge can bring to bear upon the theory of a future life point to the opinion that the breach of physical continuity is not accompanied by any breach of ethical continuity. Such an opinion relating to matters beyond experience cannot of course be called scientific, but whether it be justifiable or not, my point is that neither in the crude fancies of primitive men nor in the most refined modern philosophy can theology divorce itself from ethics. Take away the ethical significance from our conceptions of the Unseen World and the quasi-human God, and no element of significance remains. All that was vital in theism is gone.

VII

Is the Substance of Religion a Phantom, or an Eternal Reality?

WE are now prepared to see what is involved in the Reality of Religion. Speaking historically, it may be said that Religion has always had two sides: on the one side it has consisted of a theory, more or less elaborate, and on the other side it has consisted of a group of sentiments conformable to the theory. Now in all ages and in every form of Religion, the theory has comprised three essential elements: first, belief in Deity, as quasi-human; secondly, belief in an Unseen World in which human beings continue to exist after death; thirdly, recognition of the ethical aspects of human life as related in a special and intimate sense to this Unseen World. These three elements

are alike indispensable. If any one of the three be taken away, the remnant cannot properly be called Religion. Is then the subject-matter of Religion something real and substantial, or is it a mere figment of the imagination? Has Religion through all these weary centuries been dealing with an eternal verity, or has it been blindly groping after a phantom? Can that history of the universe which we call the Doctrine of Evolution be made to furnish any lesson that will prove helpful in answering this question? We shall find, I think, that it does furnish such a lesson.

But first let us remember that along with the three indispensable elements here specified, every historic Religion has also contained a quantity of cosmological speculations, metaphysical doctrines, priestly rites and ceremonies and injunctions, and a very considerable part of this structure has been demolished by modern criticism. The destruction of beliefs has been so great that we can hardly think it strange if some

critics have taken it into their heads that nothing can be rescued. But let us see what the doctrine of evolution has to say. Our inquiry may seem to take us very far afield, but that we need not mind if we find the answer by and by directing us homeward.

VIII

The Fundamental Aspect of Life

OFTEN think, when working over my plants, of what Linnæus once said of the unfolding of a blossom: "I saw God in His glory passing near me, and bowed my head in worship." The scientific aspect of the same thought has been put into words by Tennyson: —

> "Flower in the crannied wall,
> I pluck you out of the crannies,
> I hold you here, root and all, in my hand,
> Little flower, — but if I could understand
> What you are, root and all, and all in all,
> I should know what God and man is."

No deeper thought was ever uttered by poet. For in this world of plants, which with its magician chlorophyll conjuring with sunbeams is ceaselessly at work bringing life out of death, — in this quiet vegetable world we may find the elementary

principles of all life in almost visible operation. It is one of these elementary principles — a very simple and broad one — that here concerns us.

One of the greatest contributions ever made to scientific knowledge is Herbert Spencer's profound and luminous exposition of Life as the continuous adjustment of inner relations to outer relations. The extreme simplicity of the subject in its earliest illustrations is such that the student at first hardly suspects the wealth of knowledge toward which it is pointing the way. The most fundamental characteristic of living things is their response to external stimuli. If you come upon a dog lying by the roadside and are in doubt whether he is alive or dead, you poke him with a stick; if you get no response you presently conclude that it is a dead dog. So if the tree fails to put forth leaves in response to the rising vernal temperature, it is an indication of death. Pour water on a drooping plant, and it shows its life by rearing its head.

The growth of a plant is in its ultimate analysis a group of motions put forth in adjustment to a group of physical and chemical conditions in the soil and atmosphere. A fine illustration is the spiral distribution of leaves about the stem, at different angular intervals in different kinds of plants, but always so arranged as to ensure the most complete exposure of the chlorophyll to the sunbeams. Every feature of the plant is explicable on similar principles. It is the result of a continuous adjustment of relations within the plant to relations existing outside of it. It is important that we should form a clear conception of this, and a contrasted instance will help us. Take one of those storm-glasses in which the approach of atmospheric disturbance sets up a feathery crystallization that changes in shape and distribution as the state of the air outside changes. Here is something that simulates vegetable life, but there is a profound difference. In every one of these changes the liquid in

the storm-glass is passive; it is changed and waits until it is changed again. But in the case of a tree, when the increased supply of solar radiance in spring causes those internal motions which result in the putting forth of leaves, it is quite another affair. Here the external change sets up an internal change which leads to a second internal change that anticipates a second external change. It is this active response that is the mark of life.

All life upon the globe, whether physical or psychical, represents the continuous adjustment of inner to outer relations. The degree of life is low or high, according as the correspondence between internal and external relations is simple or complex, limited or extensive, partial or complete, perfect or imperfect. The relations established within a plant answer only to the presence or absence of a certain quantity of light and heat, and to sundry chemical and physical relations in atmosphere and soil. In a polyp, besides general relations

similar to these, certain more special relations are established in correspondence with the eternal existence of mechanical irritants ; as when its tentacles contract on being touched. The increase of extension acquired by the correspondences as we ascend the animal scale may be seen by contrasting the polyp, which can simply distinguish between soluble and insoluble matter, or between opacity and translucence in its environment, with the keen-scented bloodhound and the far-sighted vulture. And the increase of complexity may be appreciated by comparing the motions respectively gone through by the polyp on the one hand, and by the dog and vulture on the other, while securing and disposing of their prey. The more specific and accurate, the more complex and extensive, is the response to environing relations, the higher and richer, we say, is the life.

IX

How the Evolution of Senses expands the World

THE whole progression of life upon the globe, in so far as it has been achieved through natural selection, has consisted in the preservation and the propagation of those living creatures in whom the adjustment of inner relations to outer relations is most successful. This is only a more detailed and descriptive way of saying that natural selection is equivalent to survival of the fittest. The shapes of animals, as well as their capacities, have been evolved through almost infinitely slow increments of adjustment upon adjustment. In this way, for instance, has been evolved the vertebrate skeleton, through a process of which Spencer's wonderful analysis is as thrilling as a poem. Or consider the

development of the special organs of sense. Among the most startling disclosures of embryology are those which relate to this subject. The most perfect organs of touch are the *vibrissæ* or whiskers of the cat, which act as long levers in communicating impulses to the nerve-fibres that terminate in clusters about the dermal sacs in which they are inserted. These cat-whiskers are merely specialized forms of such hairs as those which cover the bodies of most mammals, and which remain in evanescent shape upon the human skin imbedded in minute sacs. Now in their origin the eye and ear are identical with *vibrissæ*. In the early stages of vertebrate life, while the differentiations of dermal tissue went mostly to the production of hairs or feathers or scales, sundry special differentiations went to the production of ears and eyes. Embryology shows that in mammals the bulb of the eye and the auditory chamber are extremely metamorphosed hair-sacs, the crystalline lens is a differentiated hair, and the

aqueous and vitreous humours are liquefied dermal tissue! The implication of these wonderful facts is that sight and hearing were slowly differentiated from the sense of touch. One can seem to discern how in the history of the eye there was at first a concentration of pigment grains in a particular dermal sac, making that spot exceptionally sensitive to light; then came by slow degrees the heightened translucence, the convexity of surface, the refracting humours, and the multiplication of nerve-vesicles arranging themselves as retinal rods. And what was the result of all this for the creature in whom organs of vision were thus developed? There was an immense extension of the range, complexity, and definiteness of the adjustment of inner relations to outer relations; in other words, there was an immense increase of life. There came into existence, moreover, for those with eyes to see it, a mighty visible world that for sightless creatures had been virtually non-existent.

With the further progress of organic life, the high development of the senses was attended or followed by increase of brain development and the correlative intelligence, immeasurably enlarging the scope of the correspondences between the living creature and the outer world. In the case of Man, the adjustments by which we meet the exigencies of life from day to day are largely psychical, achieved by the aid of ideal representations of environing circumstances. Our actions are guided by our theory of the situation, and it needs no illustration to show us that a true theory is an adjustment of one's ideas to the external facts, and that such adjustments are helps to successful living. The whole worth of education is directed toward cultivating the capacity of framing associations of ideas that conform to objective facts. It is thus that life is guided.

X

Nature's Eternal Lesson is the Everlasting Reality of Religion

SO as we look back over the marvellous life-history of our planet, even from the dull time when there was no life more exalted than that of conferva scum on the surface of a pool, through ages innumerable until the present time when Man is learning how to decipher Nature's secrets, we look back over an infinitely slow series of minute adjustments, gradually and laboriously increasing the points of contact between the inner Life and the World environing. Step by step in the upward advance toward Humanity the environment has enlarged. The world of the fresh-water alga was its tiny pool during its brief term of existence; the world of civilized man comprehends the

stellar universe during countless æons of time. Every stage of enlargement has had reference to actual existences outside. The eye was developed in response to the outward existence of radiant light, the ear in response to the outward existence of acoustic vibrations, the mother's love came in response to the infant's needs, fidelity and honour were slowly developed as the nascent social life required them ; everywhere the internal adjustment has been brought about so as to harmonize with some actually existing external fact. Such has been Nature's method, such is the deepest law of life that science has been able to detect.

Now there was a critical moment in the history of our planet, when love was beginning to play a part hitherto unknown, when notions of right and wrong were germinating in the nascent Human Soul, when the family was coming into existence, when social ties were beginning to be knit, when winged words first took their flight through the air. It was the moment when the pro-

cess of evolution was being shifted to a higher plane, when civilization was to be superadded to organic evolution, when the last and highest of creatures was coming upon the scene, when the dramatic purpose of creation was approaching fulfilment. At that critical moment we see the nascent Human Soul vaguely reaching forth toward something akin to itself not in the realm of fleeting phenomena but in the Eternal Presence beyond. An internal adjustment of ideas was achieved in correspondence with an Unseen World. That the ideas were very crude and childlike, that they were put together with all manner of grotesqueness, is what might be expected. The cardinal fact is that the crude childlike mind was groping to put itself into relation with an ethical world not visible to the senses. And one aspect of this fact, not to be lightly passed over, is the fact that Religion, thus ushered upon the scene coeval with the birth of Humanity, has played such a dominant part in the subse-

quent evolution of human society that what history would be without it is quite beyond imagination. As to the dimensions of this cardinal fact there can thus be no question. None can deny that it is the largest and most ubiquitous fact connected with the existence of mankind upon the earth.

Now if the relation thus established in the morning twilight of Man's existence between the Human Soul and a world invisible and immaterial is a relation of which only the subjective term is real and the objective term is non-existent, then, I say, it is something utterly without precedent in the whole history of creation. All the analogies of Evolution, so far as we have yet been able to decipher it, are overwhelming against any such supposition. To suppose that during countless ages, from the seaweed up to Man, the progress of life was achieved through adjustments to external realities, but that then the method was all at once changed and throughout a vast province of evolution the end was secured

through adjustments to external non-realities, is to do sheer violence to logic and to common sense. Or, to vary the form of statement, since every adjustment whereby any creature sustains life may be called a true step, and every maladjustment whereby life is wrecked may be called a false step; if we are asked to believe that Nature, after having throughout the whole round of her inferior products achieved results through the accumulation of all true steps and pitiless rejection of all false steps, suddenly changed her method and in the case of her highest product began achieving results through the accumulation of false steps; I say we are entitled to resent such a suggestion as an insult to our understandings. All the analogies of Nature fairly shout against the assumption of such a breach of continuity between the evolution of Man and all previous evolution. So far as our knowledge of Nature goes the whole momentum of it carries us onward to the conclusion that the Unseen World, as the

objective term in a relation of fundamental importance that has coexisted with the whole career of Mankind, has a real existence; and it is but following out the analogy to regard that Unseen World as the theatre where the ethical process is destined to reach its full consummation. The lesson of evolution is that through all these weary ages the Human Soul has not been cherishing in Religion a delusive phantom, but in spite of seemingly endless groping and stumbling it has been rising to the recognition of its essential kinship with the ever-living God. Of all the implications of the doctrine of evolution with regard to Man, I believe the very deepest and strongest to be that which asserts the Everlasting Reality of Religion.

So far as I am aware, the foregoing argument is here advanced for the first time. It does not pretend to meet the requirements of scientific demonstration. One must not look for scientific demonstration in problems that contain so many factors tran-

scending our direct experience. But as an appeal to our common sense, the argument here brought forward surely has tremendous weight. It seems to me far more convincing than any chain of subtle metaphysical reasoning can ever be; for such chains, however, invincible in appearance, are no stronger than the weakest of their links, and in metaphysics one is always uneasily suspecting some undetected flaw. My argument represents the impression that is irresistibly forced upon one by a broad general familiarity with Nature's processes and methods; it therefore belongs to the class of arguments that survive.

Observe, too, that it is far from being a modified repetition of the old argument that beliefs universally accepted must be true. Upon the view here presented, every specific opinion ever entertained by man respecting religious things may be wrong, and in all probability is exceedingly crude, and yet the Everlasting Reality of Religion, in its three indispensable elements as

here set forth, remains unassailable. Our common-sense argument puts the scientific presumption entirely and decisively on the side of religion and against all atheistic and materialistic explanations of the universe. It establishes harmony between our highest knowledge and our highest aspirations by showing that the latter no less than the former are a normal result of the universal cosmic process. It has nothing to fear from the advance of scientific discovery, for as these things come to be better understood, it is going to be realized that the days of the antagonism between Science and Religion must by and by come to an end. That antagonism has been chiefly due to the fact that religious ideas were until lately allied with the doctrine of special creations. They have therefore needed to be remodelled and considered from new points of view. But we have at length reached a stage where it is becoming daily more and more apparent that with the deeper study of Nature the old strife be-

tween faith and knowledge is drawing to a close; and disentangled at last from that ancient slough of despond the Human Mind will breathe a freer air and enjoy a vastly extended horizon.

L'ENVOI

Yesterday, when weary with writing, and my mind quite dusty with considering these atoms, I was called to supper, and a salad I had asked for was set before me. "It seems, then," said I aloud, "that if pewter dishes, leaves of lettuce, grains of salt, drops of vinegar and oil, and slices of eggs, had been floating about in the air from all eternity, it might at last happen by chance that there would come a salad." "Yes," says my wife, "but not so nice and well-dressed as this of mine is!" — KEPLER, *apud* Tait and Stewart, *Paradoxical Philosophy.*

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